FEDERAL - STATE - PRIVATE

COOPERATIVE

SNOW SURVEY and WATER SUPPLY FORECASTS for MONTANA & NORTHERN WYOMING

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE,
and
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with the Bureau of Reclamation, U.S. Forest Service, U.S. Geological Survey, National Park Service, State Engineers of Montana and Wyoming and other Federal, State, and private organizations.

AS OF
APR. 1, 1961

USDA SCS LINCOLN, NEBR. 1996

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Cooperative Snow Survey and Water Supply Forecast Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
Colorado and State of Utah	Monthly (Jan.-May)	Salt Lake City, Utah	Utah State Engineer and Other Agencies
Columbia	Monthly (Jan.-May)	Boise, Idaho	Idaho State Reclamation Engineer
Upper Missouri and State of Montana	Monthly (Feb.-May)	Bozeman Montana	Mont. Agr. Exp. Station
West-Wide	Oct. 1, Apr. 1, May 1	Portland, Oregon	All Cooperators
STATES			
Alaska	Monthly (Mar.-May)	Palmer, Alaska	Alaska S.C.D.
Arizona	Semi-monthly (Jan.15 - Apr.1)	Phoenix, Arizona	Salt R. Valley Water Users Assoc. Ariz. Agr. Exp. Station
Colorado and New Mexico	Monthly (Feb.-May)	Fort Collins, Colorado	Colo. Agr. Exp. Station Colo. State Engineer N. Mex. State Engineer
Idaho	Monthly (Feb.-May)	Boise, Idaho	Idaho State Reclamation Engineer
Nevada	Monthly (Feb.-Apr.)	Reno, Nevada	Nevada Dept. of Conservation and Natural Resources Division of Water Resources
Oregon	Monthly (Jan.-May)	Portland, Oregon	Ore. Agr. Exp. Station Oregon State Engineer
Washington	Monthly (Feb.-May)	Spokane, Washington	Wn. State Dept. of Conservation
Wyoming	Monthly (Feb. June)	Casper, Wyoming	Wyoming State Engineer

Copies of these various reports may be secured from: Head, Water Supply Forecasting Section
Soil Conservation Service.
209 S. W. Fifth Ave., Portland 4, Oregon

PUBLISHED BY OTHER AGENCIES

REPORTS	ISSUED	AGENCY
British Columbia	Monthly (Feb.-June)	Comptroller, Water Rights Br., Dept. of Lands and Forests, Parliament Blog., Victoria, B.C., Canada
California	Monthly (Feb.-May)	Calif. Dept. of Water Resources, Sacramento, Calif.

FEDERAL-STATE-PRIVATE COOPERATIVE

SNOW SURVEYS and WATER SUPPLY FORECASTS

For

MONTANA AND NORTHERN WYOMING

(Upper Missouri and Upper Columbia River Basins)

Report Prepared
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MONTANA
WATER SUPPLY OUTLOOK
as of
April 1, 1961

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*   *
* The 1961 Water Supply Outlook for the current irri-   *
* gation season is POOR in the Missouri Basin and FAIR   *
* to GOOD in the Columbia Basin in Montana.   *
*   *
* *

IRRIGATION WATER SUPPLY

Critical areas exist on the headwaters of the Beaverhead, Ruby, Clarks Fork and Rock Creek of the Yellowstone and Musselshell Rivers. A Fair water supply is forecast for the Madison, Gallatin and Sun-Teton-Marias River basins.

The Yellowstone River is forecast to flow only 72 percent average at the headwaters. The potential supply for the irrigation season gradually decreases downstream to 51 percent average at Sidney. The Missouri River Main Stem at Toston is forecast to produce only 66 percent average flow to Canyon Ferry from April through September. This water supply dwindles at downstream stations to 64 percent average flow entering Fort Peck Reservoir below Zortman. With both the Missouri and Yellowstone being forecast considerably below average, anticipated flow into Garrison Reservoir at Williston, North Dakota is forecast at 56 percent average during the irrigation season.

On the Columbia Basin, prospects are for a Poor to Good water supply during the April-September period. The Kootenai River at Libby is expected to flow 101 percent average. The Flathead River at Columbia Falls is forecast at 97 percent average. The South Fork of the Flathead River below Hungry Horse Dam is forecast to flow 91 percent average, or 2,090,000 acre feet of water from April first through September 30. The Clark Fork River snow-pack is confined to extremely high elevations, with practically none in the large low elevation areas. As a result, the anticipated flow is forecast at 62 percent average above Missoula. The Bitterroot is better and is forecast at 77 percent average. These figures project downstream to St. Regis and should produce 71 percent average. The higher percentage flow from the Flathead raises the prospective flow at Plains to 86 percent average.

SNOW COVER

Snow cover at low elevations over the majority of the State is gone. April first surveys in the Marias, Sun and Teton drainage indicate this year's snow-pack is 36 percent more than last year's and is 68 percent of the 1943-57 average. The Missouri Main Stem has a snow-pack that is 79 percent of last year and 59 percent average. Over the Beaverhead-Jefferson basins, this year's snow-pack is 4 percent greater than last year, but only 65 percent average. In the Judith-Musselshell area, this year's snow-pack is only 55 percent of last year and 47 percent of the 1943-57 average. The Upper Yellowstone drainage is covered with a snow-pack that is 15 percent greater than last year's, which is 72 percent average.

On the West side of the Divide, the Kootenai above Libby has a snow-pack which is 38 percent more than last year's and is 103 percent of the 1943-57 average. The Flathead shows 3 percent more than last year and 11 percent less than average.

The Lower Clark Fork shows 124 percent more than last year; this is 93 percent average. The Upper Clark Fork is covered with a snow-pack that is 99 percent of last year and 68 percent average. The Bitterroot drainage snow-pack is 13 percent more than last year, but only 75 percent average.

PRECIPITATION

Since the first of the year, precipitation at valley stations in the Missouri basin has been about 65 percent normal, with the exception of the northeastern diversion at 80 percent normal and the southeastern diversion at 90 percent normal.

West of the Divide, precipitation since the first of the year has been 112 percent of normal.

SOIL MOISTURE

Soil moisture has improved slightly in the valley areas, but is still deficient in most areas. Soil underlying the mountain snow-pack is dry.

WINTER STREAMFLOW CONDITIONS

West of the Continental Divide, streamflow is above median; East of the Continental Divide, streamflow is below median near the Divide and diminishes to much below median in the southeastern part of the State.

IRRIGATION RESERVOIR STORAGE

Irrigation reservoirs are still below average for the first of April.

UPPER MISSOURI RIVER BASIN
SNOW SURVEY COURSES
IN
MONTANA & NORTHERN WYOMING

LEGEND

- □ TOWNS AND CITIES
- ● 1304 SNOW SURVEY COURSE
- ○ 9G1 IDAHO & WYOMING NUMBERS
- ▲ STREAM GAGING STATIONS

1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
BOZEMAN MONTANA

SCALE IN MILES 80 40 0 80 100

S/R-11,484 (1960)

INDEX TO MONTANA & NORTHERN WYOMING SNOW COURSES

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec.	Location Lat.	Location Twp.	Location Range Long.	Record Began	Measuring Dates	Measured By
JEFFERSON RIVER									
(ROCK-BEAVERHEAD)									
Lakeview Ridge	11E3	7400	27	14S	2W	1948	3,4,5		10
Lakeview Canyon	11E4	6930	26	14S	2W	1948	3,4,5		10
Limekiln	12E2	6950	5	15S	9W	1948	3,4		1
White Pine Ridge	12E1	8850	18	14S	9W	1948	3,4		1
(HORSE PRAIRIE)									
Bloody Dick	13D10	7600	12	8S	16W	1948	3,4		1
Gold Stone	13D9	8100	11	8S	16W	1948	3,4		1
Lemhi Pass	13E1	7480	9	10S	15W	1948	3,4		1
Terrell Creek	13D12	6650	14	9S	15W	1948	3,4		1
Trail Creek	13E2	7090	15	10S	15W	1948	3,4		1
Selway Junction	13D11	6860	27	8S	15W	1948	3,4		1
(BIG HOLE)									
Big Hole Pass	13D3	7240	28	3S	18W	1948	3,4		1
Big Hole Pass-Be.	13D4	6900	24	3S	18W	1948	3,4		1
East Boundary	13D5	6700	22	3S	17W	1948	3,4		1
Gibbons Pass	13D2	7100	4	2S	19W	1934	1,2,3,4,5		1,3
Jahnke Creek	13D8	7340	25	7S	16W	1948	3,4		1
Miner Forke	13D6	7300	24	6S	17W	1948	3,4		1
Miner Lake	13D7	6720	10	6S	16W	1945	3,4,5		1
(WISE RIVER)									
Anderson Mdw.	13D14	7000	18	3S	12W	1948	3,4		1
Elk Horn	13D15	8450	15	4S	12W	1935	3,4,5		3
Wise River	13D13	6300	15	2S	12W	1948	3,4		1
(RUBY RIVER)									
Flashlight	12D3	6950	22	8S	7W	1945	3,4,5		1
MADISON RIVER									
Hebgen	11E5	6550	22	11S	3E	1934	1,2,3,4,5		3
West Yellowstone	11E7	6700	34	13S	5E	1934	1,2,3,4,5		3
Norris Basin	10E2	7500	44°44'		110°-42'	1936	3,4		6
GALLATIN RIVER									
Devil's Slide	10D4	8100	14	5S	6E	1935	2,3,4,5		2,1
Hood Meadow	10D3	6600	22	4S	6E	1935	2,3,4,5		2,1
New World	10D1	6700	24	3S	6E	1939	1,2,3,4,5		7
21-Mile	11E6	7150	1	11S	5E	1934	1,2,3,4,5		3
MISSOURI RIVER MAIN STEM									
Chessman Reservoir	12C5	6200	2	8N	5W	1936	1,2,3,4,5		3
Crystal Lake	9C1	6100	19	12N	18E	1941	3,4		1,2
Grasshopper	10C2	7000	19	9N	8E	1938	3,4		2
Kings Hill	10C1	7950	35	13N	7E	1934	3,4,5		3
Picnic Grounds	12C6	6500	10	5N	6W	1941	2,3,4		4
Pipestone Pass	12D1	7200	10	1N	7W	1938	2,3,4,5		1
Stemple Pass	12D1	6900	16	13N	7W	1934	3,4,5		3
Ten Mile Creek L	12C2	6250	13	8N	6W	1935	1,2,3,4,5		3
Ten Mile Creek M	12C3	6800	13	8N	6W	1934	1,2,3,4,5		3
Ten Mile Creek U	12C4	8000	19	8N	5W	1935	1,2,3,4,5		3
(TETON RIVER)									
Freight Creek	12A1	6000	13	26N	10W	1948	3,4		1
Waldron Creek	12B2	5600	16	25N	9W	1948	3,4		1
West Fork	12B1	6000	6	25N	9W	1948	3,4		1
(SUN RIVER)									
Benchmark	12B8	5500	9	20N	10W	1948	3,4		1
Cabin Creek	12B6	5400	33	23N	10W	1949	3,4		1,2
5-Bull	12B9	5600	36	20N	10W	1948	3,4		1,2
Gates Park	12B5	5300	31	24N	10W	1949	3,4		1,2
Goat Mountain	12B7	7000	20	22N	10W	1934	3,4		3
Wrong Ridge	12B3	6800	17	25N	10W	1949	3,4		1,2
Wrong Creek	12B4	5700	32	25N	10W	1949	3,4		1,2
(MARIAS RIVER)									
Marias Pass	13A5M	5250	34	30N	14W	1934	1,2,3,4,5		3
(MILK RIVER)									
Rocky Boy	9A1	5200	15	28N	16E	1941	3,4		7
(MUSSELSHELL RIVER)									
Grasshopper	10C2	7000	19	9N	8E	1938	3,4		2

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec.	Location Lat.	Location Twp.	Location Range Long.	Record Began	Measuring Dates	Measured By
MISSOURI RIVER DRAINAGE (cont.)									
(UPPER YELLOWSTONE)									
Camp Senia	9D1	7890	2		8S	16E	1937	4	1
Canyon	10E3	7750	44°-44'			110°-30'	1938	1,2,3,4,5	6
Cooke City	10D7	7400	25		9S	14E	1937	1,2,3,4,5	6
Crevice Mt.	10D5	8400	22		9S	9E	1935	3,4	2
Independence	10D6	8000	22		7S	12E	1940	3,4	1
Lake Camp	10E4	7850	44°-34'			110°-24'	1934	1,2,3,4,5	6
Lupine Creek	10E1	7300	44°-54'			110°-37'	1938	1,2,3,4,5	6
Lodgepole	9E1	8200	32		5SN	106W	1940	2,3,4,5	1,4
West Rosebud	9E2	7800	10		7S	16E	1960	1,2,3,4,5	4
(SHIELLS RIVER)									
Porcupine	10C3	6500	10		4N	10E	1938	3,4	1
LOWER YELLOWSTONE									
(WIND RIVER) Wyoming									
Big Warm	9F12	8800	36		42N	109W	1955	2,3,4,5	1
Bronke Lake #3	10F8	9200	23		44N	110W	1939	2,3,4,5	1
Burroughs Creek	9F4	8800	15		43N	107W	1948	2,3,4,5	1
Dinwoodie	9F10	10000	21		39N	105W	1948	2,3,4,5	1
Dry Creek	9F9	9500	34		4N	6W	1948	2,3,4,5	1
DuNoir	9F6	8750	27		42N	108W	1940	2,3,4,5	1
East Fork	9F13	9200	23		44N	104W	1946	2,3,4,5	1
Geyser Creek	9F7	8500	12		41N	108W	1948	2,3,4,5	1
Little Warm	9F8	9500	24		41N	108W	1948	2,3,4,5	1
Sheridan R.S. #1	9F5	7500	3		42N	109W	1939	2,3,4,5	1
Sheridan R.S. #2	9F14	7500	3		42N	109W	1955	2,3,4,5	1
T-Cross Ranch	9F3	8000	1		43N	107W	1940	2,3,4,5	1
Togwotee Pass	10F9	9600	29		44N	110W	1936	2,3,4,5	11
(POPO AGIE RIVER) Wyoming									
Blue Ridge	802	9500	23		31N	101W	1939	2,3,4,5	1
Bruce's Camp	805	6500	24		32N	101W	1955	2,3,4	1
Hobb'e Park	903	10000	22		2S	3W	1948	2,3,4,5	1
Mosquito Park R.S.	904	9500	23		2S	3W	1940	2,3,4,5	1
Sawmill Grade	804	8500	3		31N	101W	1939	2,3,4,5	1
South Pass	803	9000	13		30N	101W	1939	2,3,4,5	1
St. Lawrence	9F11	9000	26		1N	4W	1940	2,3,4,5	1
Trout Creek	902	8400	5		2S	2W	1948	2,3,4,5	1
(OWL CREEK) Wyoming									
Beavere Mill	9F2	8900	6		43N	102W	1948	2,3,4,5	1
Owl Creek	8F1	8700	36		43N	101W	1948	2,3,4,5	1
(GREYBULL RIVER) Wyoming									
Timber Creek #1	9E2	8800	25-		47N	103W	1948	2,3,4,5	1
Timber Creek #2	9E3	8800	25		47N	103W	1955	2,3,4,5	1
Wood River #1	9F1	8000	28		46N	103W	1939	2,3,4,5	1
Wood River #2	9F15	8000	28		46N	103W	1956	2,3,4,5	1
(SHOSHONE RIVER) Wyoming									
East Entrance	10E6	7000	17		52N	109W	1948	1,2,3,4,5	6
Sylvan Pass	10E5	7100	12		52N	110W	1936	1,2,3,4,5	6
(NOWOOD CREEK) Wyoming									
Cold Springs Camp	7E25	8700	1		50N	88W	1956	2,3,4,5	1
Medicine Lodge Lks	7E24	9500	7		51N	87W	1956	2,3,4,5	1
Munkers Pass	7E8	9700	11		48N	85W	1950	2,3,4,5	1
North Powder	7E36	8300	20		47N	85W	1956	2,3,4,5	1
Onion Gulch	7E27	8100	31		48N	85W	1956	2,3,4,5	1
Tensleep Lake	7E26	9075	33		50N	86W	1956	2,3,4,5	1
Tensleep R.S.	7E7	8300	30		49N	86W	1935	2,3,4,5	1
Tyrell R.S.	7E35	8300	30		49N	86W	1956	2,3,4,5	1
(SHELL CREEK) Wyoming									
Bald Mountain	7E21	9600	33		56N	91W	1956	2,3,4,5	1
Beaver-Tongue Div.	7E20	9200	12		55N	91W	1956	2,3,4,5	1
Bone-Spring Div.	7E18	9200	32		55N	89W	1956	2,3,4,5	1
Granite Creek Camp	7E22	7800	15		53N	89W	1956	2,3,4,5	1
Granite Pass	7E17	8950	19		54N	88W	1956	2,3,4,5	1
Horse-Trail Div.	7E19	9200	29		55N	90W	1956	2,3,4,5	1
Ranger Creek	7E4	8800	32		53N	88W	1935	2,3,4,5	1
Shell Creek	7E23	9600	12		52N	88W	1956	2,3,4,5	1
(PORCUPINE CREEK) Wyoming									
Five Spge. Falls	7E31	7500	19		56N	92W	1956	2,3,4,5	1
Medicine Wheel	7E30	9000	24		56N	92W	1956	2,3,4,5	1
(TONGUE RIVER) Wyoming									
Beaver Tongue Div.	7E20	9200	12		55N	91W	1956	2,3,4,5	1
Big Goose #1	7E2	7700	4		53N	86W	1935	2,3,4,5	1
Big Goose #2	7E32	7700	4		53N	86W	1955	2,3,4,5	1
Bone-Spring Div.	7E18	9200	32		55N	89W	1956	2,3,4,5	1
Burgess R.S. #1	7E1	7900	36		56N	89W	1950	2,3,4,5	1
Burgess R.S. #2	7E33	7900	36		56N	89W	1955	2,3,4,5	1
Dome Lake #1	7E3	8800	11		53N	87W	1950	2,3,4,5	1
Dome Lake #2	7E34	8800	11		53N	87W	1950	2,3,4,5	1
Gloom Creek	7E14	9300	32		55N	87W	1956	2,3,4,5	1
Granite Pass	7E17	8950	19		54N	88W	1956	2,3,4,5	1

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec.	Location Lat.	Location Twp.	Range Long.	Record Began	Measuring Dates	Measured By
MISSOURI RIVER ORAINAGE (cont.)									
(TONGUE RIVER cont.)									
Horse Trail Div.	7E19	9200	29		55N	90W	1956	2,3,4,5	1
Lake Geneva	7E16	9000	7		52N	88W	1956	2,3,4,5	1
North Tongue	7E15	8800	17		55N	89W	1956	2,3,4,5	1
Sibley Lake	7E11	8000	10		55N	88W	1956	2,3,4,5	1
Sucker Creek	7E12	9000	19		55N	87W	1956	2,3,4,5	1
Steamboat Point	7E10	7500	32		56N	87W	1956	2,3,4,5	1
Wood Rock O.S.	7E13	8500	3		54N	88W	1956	2,3,4,5	1
(POWDER RIVER) Wyoming									
Crazy Woman	6E2	8200	6		47N	84W	1956	2,3,4,5	1
Muddy Creek G.S.	6E1	7800	2		48N	84W	1956	2,3,4,5	1
Munkers Pass	7E8	9700	11		48N	85W	1950	2,3,4,5	1
North Powder #2	7E36	8300	20		47N	85W	1956	2,3,4,5	1
Onion Gulch	7E27	8100	31		48N	85W	1956	2,3,4,5	1
Soldier Park	7E5	8700	36		51N	85W	1950	2,3,4,5	1
Sour Dough	7E6	8500	17		49N	84W	1936	2,3,4,5	1
COLUMBIA RIVER BASIN									
KOOTENAI RIVER									
Baree Creek	15B11	5500	6		25N	30W	1956	4,5,5½	2
Baree Mountain	15B1	6000	1		25N	31W	1937	4,5,5½	2
Red Mountain	15A1	6000	4		36N	29W	1937	3,4,5,5½	1,2
Weasel Divide	14A7	5450	8		37N	24W	1955	4,5,5½	1,2
FLATHEAD RIVER									
Basin Creek	13B11A	5000	11		19N	12W	1951	2,3,4,5	2
Big Creek	11B3	6750	6&7		22N	10W	1941	3,4,5	5
Brush Creek	14A4	5000	13		30N	26W	1937	3,4,5	1,2
Cattle Queen	13A1	4700	7		35N	17W	1939	3,4,5	6
Desert Mountain	13A2M	5600	24		31N	19W	1937	1,2,3,4,5	1,2
Hell Roaring Div.	14A3	5770	35		32N	22W	1942	3,4,5	1,2
Holbrook	13B13A	4530	18		21N	13W	1951	1,2,3,4,5	2
Kiehenehn	14A6	3886	14		37N	22W	1954	4,5	6
Logan Creek	14A5	4300	34		30N	24W	1937	3,4,5	2
Mariae Pass	13A5M	5250	34		30N	14W	1934	1,2,3,4,5	3
Mineral Creek	13A16	4000	29		35N	17W	1957	3,4,5	6
Quintonkon	13A13	3800	11		26N	17W	1951	2,3,4,5	1,2
Spotted Bear Mt.	13B2M	7000	23		25N	15W	1948	3,4,5	1,2
Strawberry Lake	13A10	6500	11		28N	19W	1948	3,4,5	2
Trinkus Lake	13B1	6500	9		25N	17W	1948	3,4,5	2
Trout Lake	13A12M	3600	21		28N	17W	1948	3,4,5	1,2
Twin Creeks	13B11	3580	14		26N	16W	1951	2,3,4,5	1,2
Upper Holland Lk.	13B5	7000	28		20N	16W	1948	3,4,5	2
CLARK FORK									
Baree Creek	15B11	5500	6		25N	30W	1956	4,5,5½	2
Baree Mountain	15B1	6000	1		25N	31W	1937	4,5,5½	2
Black Pine	13C13	7100	25		8N	15W	1960	3,4,5	1
Coyote Hill	13B10	4200	12		18N	16W	1952	1,2,3,4,5	2
El Dorado Mine	13C9	7800	23		8N	12W	1949	4	1
Fred Burr Pase	13C11	8000	12		6N	13W	1957	3,4,5	1
Freezeout Summit	15B10	6800	21		15N	27W	1937	4,5	2
Gold Creek Lk.	13C10	7200	14		8N	12W	1949	4	1
Hoodoo Creek	15C1	6200	9		14N	27W	1937	4,5	2
Intergeard	13C4	6450	6		5N	13W	1936	2,3,4	4
Lubrecht Forest #6	13C8	4400	11		14N	15W	1951	1,2,3,4,5	12
North Fork Jocko	13B7	6330	3		17N	17W	1941	3,4,5	5
Pipestone Pass	12D1	7200	10		1N	7W	1938	2,3,4,5	1
Red Lion	13C12	7000	27		6N	13W	1958	3,4,5	1
Slide Rock Mt.	13C7	7100	35		10N	16W	1937	4	1
Southern Cross	13C5	6500	8		5N	13W	1936	2,3,4	4
Stemple Pass	12C1	6900	16		13N	7W	1934	3,4,5	3
Storm Lake	13C7	7780	19		4N	13W	1939	2,3,4	1
Stuart Mill	13C6	6500	19		5N	13W	1936	2,3,4	4
Stuart Mountain	13C1	7400	6		14N	18W	1936	4	1,2
TV Mountain	14B1	6800	33		15N	19W	1956	1,2,3,4,5	1
BITTERROOT RIVER									
Ambrose	13C16	6475	28		9N	18W	1960	3,4,5	1
East Fork R.S.	13D1	5400	16		2N	17W	1937	4	1
Gibbons Pass	13D2	7100	4		2S	19W	1934	1,2,3,4,5	3,1
Idlo Pass	14C5	5230	16		38N	15E	1956	3,4,5,5½	2
Lost Horse	14C7	5940	5		4N	23W	1960	3,4,5	1
Nez Perce Camp	14D2	5580	19&20		1S	23W	1937	3,4,5	1
Nez Perce Pass	14C1	6575	32		28N	17E	1937	1,2,3,4,4½,5,5½	1
Powell R.S.	14C6	4230	33		37N	14E	1956	3,4,5,5½	2
Skelkeho Summit	13C3	7259	30		6N	17W	1937	4	1
Twin Lakes	14C8	6510	32		5N	23W	1960	3,4,5	1
SASKATCHEWAN RIVER BASIN									
ST. MARY RIVER									
Iceberg Lake #3	13A3	5600	48°-50'			113°-43'	1922	5	
Josephine Upper	13A15	5000	48°-50'			113°-42'	1956	5	3,9
Josephine Lower #9	13A14	4900	48°-47'			113°-41'	1955	5	
Mount Allen #7	13A7	5700	48°-46'			113°-41'	1922	5	3,9
Piegan #6	13A6	5500	48°-46½'			113°-41¼'	1922	5	3,9
Ptarmigan #8	13A8	5800	48°-50'			113°-44'	1937	5	3,9

a. Numerale 1,2,3,4 and 5 refer to January 1, February 1, March 1, April 1 and May 1.

b. Numerals refer to Agency that secures the snow survey as follows:

1. Soil Conservation Service
2. U. S. Forest Service
3. U. S. Geological Survey
4. Montana Power Company
5. U. S. Indian Service
6. National Park Service
7. Montana Experiment Station
8. City of Bozeman
9. Dominion Water & Power Bureau
10. U. S. Fish and Wildlife Service
11. U. S. Bureau of Reclamation
12. Montana State Forestry School

M - Soil Moisture
A - Aerial Marker

5,R-11,684 - (1960)

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

Summary of Snow Survey Data by Tributary Watersheds April 1, 1961

TRIBUTARY WATERSHED	No. of Courses Averaged	No. Years Used	1961 Snow Water Equivalent Expressed as Percent of	
			1960	1943-57 Average
COLUMBIA RIVER BASIN IN MONTANA				
Kootenai above Libby	14	7-15	138	103
Flathead	21	7-15	103	89
Lower Clark Fork	10	5-15	124	93
Upper Clark Fork	15	5-15	99	68
Bitterroot	9	14-15	113	75
MISSOURI RIVER BASIN IN MONTANA				
Marias, Teton & Sun	11	9-15	136	68
Missouri Main Stem	7	15	79	59
Beaverhead-Jefferson	31	10-15	104	65
Madison-Gallatin	10	12-15	129	81
Judith-Musselshell	5	15	55	47
Upper Yellowstone	16	9-15	115	72

AVAILABLE SOIL MOISTURE
as of
April 1, 1961

Drainage Basin and Station	Station No.	Elev.	Soil Profile in Inches		Date	Soil Moisture Content in Inches About 4/1/61				Yrs
			Depth	Cap.		1961	1960	1959	Avg.	
GALLATIN										
College Site	11D2M	4856	54	14.5	3/31	10.9	12.6	11.6	10.3	4
MADISON										
Red Bluff	11D4M	4800	40	2.9	4/1	2.1	-	-	-	-
SHIELDS										
Battle Ridge	10D11M	6020	48	13.3	3/27	12.6	-	-	-	-
Shields River	10C4M	5850	48	15.9	3/24	13.3	-	-	-	-
FLATHEAD										
Desert Mountain	13A2M	6370	54	6.8	3/27	7.2	8.6	8.0	7.5	4
Marias Pass	13A5M	5250	54	8.4	3/24	6.2	6.6	6.7	6.3	7
Spotted Bear R.S.	13B15M	3700	28	5.9	3/30	5.3	5.3	5.3	5.4	4
Trout Lake	13A12M	3600	54	11.8	3/30	12.5	12.5	12.0	12.4	4

AVAILABLE SOIL MOISTURE
as of
October 1, 1960

						1960	1959	1958	Avg.	
GALLATIN										
College Site	11D2M	4856	54	14.5	9/30	5.8	8.6	6.8	5.8	4
MADISON										
Red Bluff	11D4M	4800	40	2.9		New Station				
SHIELDS										
Battle Ridge	10D11M	6020	48	13.3	10/3	10.6	-	-	-	-
Shields River	10C4M	5850	48	15.9	10/3	11.5	-	-	-	-
FLATHEAD										
Desert Mountain	13A2M	6370	54	6.8	9/23	4.5	7.2	5.9	6.1	4
Marias Pass	13A5M	5250	54	8.4	9/26	3.2	5.6	4.5	4.7	6
Spotted Bear R.S.	13B15M	3700	28	5.9	9/23	0.6	4.3	3.7	3.1	4
Trout Lake	13A12M	3600	54	11.8	9/23	6.9	9.8	10.5	7.9	4

WATER SUPPLY OUTLOOK

KOOTENAI RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the Kootenai drainage in Montana is Excellent.

Snow survey measurements made near the first of April indicate this year's snow-pack is greater than for the same date last year. This year's snow-pack in the Kootenai basin in Canada and Montana is 38 percent above last year and 103 percent of the 1943-57 average.

Streamflow in the Kootenai River is expected to be slightly above last year for the April through September period. Streamflow in the Yaak, Tobacco and Fisher Rivers should be 10 to 20 percent greater than last year.

Report Prepared by

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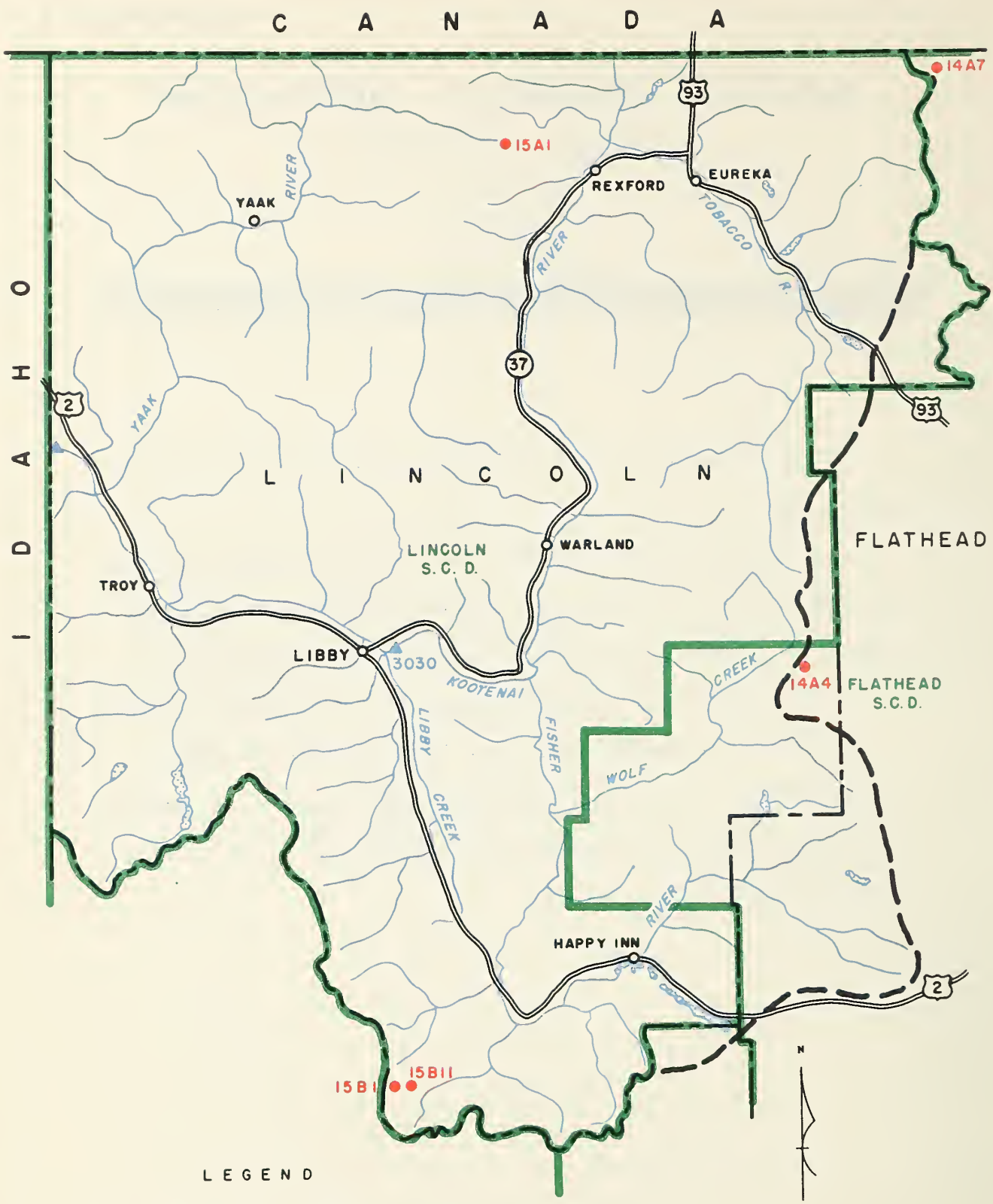
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,507.1



USDA-SCS-LINCOLN, NEBR 1960

5,L-16,507.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED I

(1000 Acre Feet)

FORECAST POINT		FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED +	
NO.	NAME				LAST YEAR	NORMAL
	KOOTENAI RIVER					
3030	Libby (at)	Apr-Sept	7815	101	7483	7723
		Apr-July	6769	101	6427	6694
3050	Leonia (at)	Apr-Sept	9000	101	8440	8907
		Apr-July	7899	101	7388	7817

(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1961

WATERSHED I

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
15B11	Baree Creek	5500	3/31	114	52.1	36.7	-	-
15B1	Baree Mountain	6000	3/31	111	46.6	36.0	46.4	15
14A4	Brush Creek	5000	3/20	40	12.2	11.1	15.2	9
Can 10	Fernie	3500	3/29	24	8.3	4.3	9.3	15
Can 12A	Field	4200	3/30	18	5.2	3.4	5.2	15
Can 43	Gray Creek	5100	3/26	66	22.1	17.1	19.6	10
Can 33	Kicking Horse	5400	3/31	47	15.1	11.2	14.9	11
Can 20B	Kimberley	3800	3/29	30	9.3	4.4	6.8	15
Can 32	Marble Canyon	5000	3/30	49	11.3	7.1	14.0	11
Can 10A	New Fernie	4100	3/29	47	16.5	9.4	15.3	7
15A1	Red Mountain	6000	3/22	63	22.9	18.2	21.5	15
Can 8A	Sinclair Pass	4500	3/30	21	4.8	4.1	6.0	15
Can 20A	Sullivan Mine	5100	3/30	50	16.7	12.2	15.4	12
Can 41	Upper Elk River	4400	3/30	25	8.5	3.1	8.3	10
14A7	Weasel Divide	5450	3/23	102	38.6	31.5	33.4	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

FLATHEAD RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook in the Flathead basin is GOOD.

Snow surveys near the first of April indicate a good snow-pack in the higher elevations, but diminishing in supply at the lower elevations. A good snow-pack is present in the northern portion of the basin, with a downward trend toward the southern portion of the drainage. Over the entire Flathead basin, this year's snow-pack is 3 percent greater than last year's and 89 percent of the 1943-57 average.

The South Fork of the Flathead is forecast to flow 2,090,000 acre feet during the April through September period. This figure is 3 percent less than last year and 91 percent of the 1943-57 average. Flow in the North and Middle Forks is expected to be slightly above last year. The Swan River near Big Fork is forecast to flow less than last year.

Irrigation reservoir storage is below last year and slightly below average.

Report Prepared by

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BOX 855 BOZEMAN, MONTANA

THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,398.1


CANADA
LEGEND
13E2 SNOW SURVEY COURSE
12D2M SOIL MOISTURE STATION
13B3A AERIAL MARKER AT SNOW COURSE
0125 STREAM GAGING STATION
DRAINAGE
S. C. D. BOUNDARY
WATERSHED BOUNDARY
HIGHWAY
TOWN
COUNTY BOUNDARY
STATE BOUNDARY
N
14A7
14A6
13A15
13A3
13A8
13A14
13A1
13A6
13A16
13A7
FLATHEAD
RIVER
LAKE MCDONALD
FLATHEAD S. C. D.
STILLWATER
OLNEY
14A3
3585
WEST GLACIER
3555
MIDDLE
13A2M
WHITEFISH
COLUMBIA FALLS
CORAM
14A4
14A5
RIVER
40
3630
3625
PINNACLE
2
13A5M
SOUTH
FORK
BLACKTAIL
KALISPELL
ASHLEY LAKE
13A10
93
FLATHEAD
MARION
SOMERS
3710
BIGFORK
3700
13A13
13A12M
12A1
13B11
13B1
13B15M
12B3
LITTLE
SWAN LAKE
SWAN
SWAN LAKE
13B2
FORK
35
LAKE CO. S. C. D.
ELMO
FLATHEAD LAKE
POLSON
13B3
28
HOT SPRINGS
3720
LAKE
BITTERROOT
RIVER
SALMON L.
13B13A
RONAN
CONDON
10A
SANDERS
13B5
13B14A
PLAINS
3890
EASTERN SANDERS CO. S.C.D.
PARADISE
NORTH POWELL S. C. D.
FLATHEAD
13B10
ST. IGNATIUS
RAVALLI
13B7
ARLEE
MISSOULA CO. S. C. D.
POWELL
II
MONTANA
93
MISSOULA
14B1
13C1
10A
SCALE 10 0 10 20 30 40 MILES
USDA SCS LINCOLN NEBR 1960

5,L-16,398

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED II

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED LAST YEAR+	MEASURED NORMAL
	NORTH FORK FLATHEAD RIVER					
3555	Columbia Falls (near)	Apr-Sept	2039	105	1905	1942
		Apr-July	1854	105	1735	1769
		Apr-June	1560	105	1470	1491
	MIDDLE FORK FLATHEAD RIVER					
3585	West Glacier (near)	Apr-Sept	1796	95	1742	1881
		Apr-July	1667	95	1614	1747
		Apr-June	1423	96	1359	1480
	SOUTH FORK FLATHEAD RIVER					
3625	Columbia Falls (nr)(17)	Apr-Sept	2090	91	2147	2297
		Apr-July	1984	91	2039	2180
		Apr-June	1729	91	1792	1900
	FLATHEAD RIVER					
3630	Columbia Falls (at)(17)	Apr-Sept	6085	97	5888	6299
		Apr-July	5588	96	5465	5845
		Apr-June	4791	96	4695	4993
3720	Polson (near)(18)	Apr-Sept	7216	97	7377	7462
		Apr-July	6722	97	6832	6939
		Apr-June	5661	96	5837	5897
	SWAN RIVER					
3700	Big Fork (near)	Apr-Sept	631	98	724	641
		Apr-July	564	98	634	568
		Apr-June	451	98	513	460

(17) Observed flow plus change in storage in Hungry Horse Reservoir.
(18) Observed flow plus change in storage in Hungry Horse Reservoir and Flathead Lake.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
3620	Hungry Horse	3428.0	2763.0	2841.0	2022.0
3710	Flathead	1791.0	1043.0	867.8	628.8
3757	Camas	45.2	27.2	37.3	26.5
3800	Mission Valley	100.3	33.9	53.0	38.6
3805	Lower Jocko Lake	7.6	Snowbound	1.4	-

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA-SCS-LINCOLN NEBR. 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF APRIL 1, 1961 WATERSHED II

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
13B14A	Basin Creek	5000	3/29	23	7.6	6.2	10.0	7
14B3	Bassoo Peak	5150	4/3	26	7.9	-	-	-
13B3	Big Creek	6750	3/30	106	45.3	45.8	43.4	15
14A4	Brush Creek	5000	3/20	40	12.2	11.1	15.2	9
13A1	Cattle Queen	4700	4/1	82	28.5	27.7	34.4	15
13A2M	Desert Mountain	5600	3/27	44	14.1	15.9	16.6	15
Can 10	Fernie	3500	3/29	24	8.3	4.3	9.3	15
14A9	Griffin Creek Divide	5150	4/3	29	8.9	9.2	-	-
14A3	Hell Roaring Divide	5770	3/21	85	32.6	33.2	31.7	15
13B13A	Holbrook	4530	3/29	19	7.0	6.6	10.4	7
14A6	Kishenehn	3886	3/29	23	6.1	6.9	10.8	15
14A5	Logan Creek	4300	3/20	21	6.1	5.7	9.8	15
13A5M	Marias Pass	5250	3/29	47	15.6	12.5	20.3	15
13A16	Mineral Creek	4000	4/1	48	18.2	20.2	-	-
Can 10A	New Fernie	4100	3/29	47	16.5	9.4	15.3	7
13B7	North Fork Jocko	6330	3/31	107	44.4	40.8	44.4	15
13A13	Quintonkon	3800	3/28	28	9.9	12.0	14.9	7
13B2	Spotted Bear Mountain	7000	3/29	44	12.6	12.0	16.0	10
13A10	Strawberry Lake	6500	3/30	94	41.9	48.6	44.0	10
13B1	Trinkus Lake	6500	4/1	106	42.0	40.1	42.4	10
13A12M	Trout Lake	3600	3/30	20	7.0	14.3	17.8	10
14B1	TV Mountain	6800	3/22	52	16.0	12.4	-	-
13B11	Twin Creeks	3580	3/30	20	7.0	9.5	10.6	7
13B5	Upper Holland Lake	7000	4/1	81	29.7	27.6	37.6	9
14A7	Weasel Divide	5450	3/23	102	38.6	31.5	33.4	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

WATER SUPPLY OUTLOOK

LOWER CLARK FORK RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the Clark Fork River and tributary streams below Missoula is Fair to Good.

Snow surveys near the first of April indicate this year's snow-pack is 24 percent greater than last year and 93 percent of the 1943-57 average. This season's snow-pack is confined to high elevation areas of the basin.

The April through September streamflow is forecast to be less than last year on the Clark Fork River; however, tributary streams in the lower Clark Fork basin are expected to produce more water during the April through September period than last year.

Report Prepared by

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,506.1

USDA SCS LINCOLN NEBR 1960

5,L-16,506.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED III

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED LAST YEAR	MEASURED NORMAL
	BLACKFOOT RIVER					
3400	Bonner (near)	Apr-Sept	725	73	818	999
		Apr-July	642	71	736	907
		Apr-June	549	71	655	775
	CLARK FORK RIVER					
3404	Milltown (above)	Apr-Sept	401	49	672	815
		Apr-July	347	49	576	716
		Apr-June	292	48	525	609
3405	Missoula (above)	Apr-Sept	1126	62	1490	1814
		Apr-July	989	61	1312	1620
		Apr-June	841	61	1180	1384
3530	Missoula (below)	Apr-Sept	2324	69	2712	3361
		Apr-July	2105	69	2450	3059
		Apr-June	1775	68	2202	2608
3545	St. Regis (at)	Apr-Sept	3244	71	3645	4549
		Apr-July	2938	71	3286	4140
		Apr-June	2480	70	2951	3551
3890	Plains (near) (18)	Apr-Sept	10636	86	11238	12330
		Apr-July	9789	86	10226	11308
		Apr-June	8211	85	8885	9625
3910	Thompson Falls (at)(18)	Apr-Sept)				
		Apr-July)	No Forecasts (A)			
		Apr-June)				
3920	Whitehorse Rapids (at)(19)	Apr-Sept	12093	87	12992	13932
		Apr-July	11156	87	11815	12763
		Apr-June	9319	86	10193	10816

(A) Thompson Falls stream measurements discontinued by USGS, 9/30/59.
(14) Difference in observed flow, Clark Fork above Missoula & Blackfoot at Bonner.
(18) Observed flow plus change in storage in Flathead Lake & Hungry Horse Res.
(19) Observed flow plus change in storage in Hungry Horse Reservoir, Flathead Lake and Noxon Reservoir.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
3913	Noxon	200.1	115.5	179.0	-

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1961 WATERSHED III

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
15B11	Baree Creek	5500	3/31	114	52.1	36.7	-	-
15B1	Baree Mountain	6000	3/31	111	46.6	36.0	46.4	15
13B10	Coyote Hill	4200	3/31	20	6.5	8.4	11.2	11
15C2	Fish Lake Airstrip	5000	3/29	97	39.3	33.8	40.0	5
15B10	Freezeout Summit	6800	3/27	101	36.9	25.8	36.8	15
15C1	Hoodoo Creek	6200	3/27	131	51.8	37.4	53.2	15
14C5	Lolo Pass	5230	3/23	80	31.4	24.8	36.7	14
15B2	Lookout	5250	3/30	96	37.3	28.5	39.0	15
13C8	Lubrecht Forest #6	4040	3/31	0	0	0	3.7	7
13B7	North Fork Jocko	6330	3/31	107	44.4	40.8	44.4	15
14C6	Powell R. S.	4230	3/24	30	10.2	12.0	-	-
14C4	Savage Pass	6600	3/23	27	24.7	21.2	30.3	14
14B1	TV Mountain	6800	3/22	52	16.0	12.4	-	-

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

UPPER CLARK FORK RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the coming irrigation season in the Upper Clark Fork drainage is Fair to Poor.

Flint Creek at Maxville is forecast to flow 23,400 acre feet from April through September, which is lower than the lowest flow recorded at this station since it was started in 1942.

Again this month, farmers and ranchers who depend upon natural streamflow for irrigation, are advised to give serious consideration to the planting of early maturing crops such as millet and grains for hay. New stands of hay and pasture should be deferred, as the water supply will be most critical during the latter part of the irrigation season. Those dependent upon a limited water supply should consider summer fallowing part of their cropland for weed control, or defer cropping to facilitate land leveling or revision of irrigation systems. To conserve water, irrigate only when necessary and use proper application rate.

Snow survey measurements near the first of April indicate this year's snow-pack over the headwaters of the Clark Fork and Blackfoot basins is about the same as last year, and confined to high elevations. The entire pack is only 68 percent average. In contrast to last year, this year's snow-pack overlies dry soil and much of the water in the snow-pack will be used to prime the soil.

April through September streamflow in the Blackfoot and Clark Fork Rivers is expected to be less than last year with the probability of a severe shortage later in the irrigation season.

Report Prepared by

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,396.1

5,L-16,396

USDA SCS LINCOLN NEBR 980

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED IV

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED LAST YEAR+	MEASURED NORMAL
	FLINT CREEK					
3295	Maxville (at)	Apr-Sept	23.4	51	-	46.4
		Apr-July	18.0	51	-	35.4
	BOULDER CREEK					
3300	Maxville (at)	Apr-Sept	16.9	60	-	28.2
		Apr-July	15.5	60	-	25.8
	MIDDLE FORK ROCK CREEK					
3320	Philipsburg (near)	Apr-Sept	50.2	63	-	82.2
		Apr-July	46.3	64	-	72.1
	BLACKFOOT RIVER					
3400	Bonner (near)	Apr-Sept	725	73	818	999
		Apr-July	642	71	736	907
		Apr-June	549	71	655	775
	CLARK FORK RIVER					
3404	Milltown (above) (14)	Apr-Sept	401	49	672	815
		Apr-July	347	49	576	716
		Apr-June	292	48	525	609

(14) Difference in observed flow, Clark Fork above Missoula & Blackfoot at Bonner.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
3250	Georgetown Lake	31.0	22.6	28.8	21.6
3365	Nevada Creek	12.6	-	12.3	8.1

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1961 WATERSHED IV

SNOW COURSE NO.	SNOW COURSE NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches) LAST YEAR	PAST RECORD: WATER CONTENT (Inches) AVERAGE	YEARS OF RECORD
13C16	Ambrose	6475	3/30	36	11.0	8.9	-	-
13C13	Black Pine	7100	3/22	32	10.1	10.2	-	-
12C5	Chessman Reservoir	6200	3/30	9	1.2	1.6	5.1	15
13C9	El Dorado Mine	7800	3/24	50	15.0	18.6	22.6	6
13C11	Fred Burr Pass	8000	3/21	60	20.0	20.4	-	-
13C10	Gold Creek Lake	7200	3/24	39	11.5	11.2	17.7	5
13C4	Intergaard	6450	3/31	22	6.6	6.2	8.1	12
13C8	Lubrecht Forest #6	4040	3/31	0	0	0	3.7	7
12D1	Pipestone Pass	7200	4/3	15	4.9	5.6	6.0	15
13C12	Red Lion	7000	3/21	42	12.0	12.1	-	-
13C3	Skalkaho Summit	7259	3/22	67	23.3	18.0	28.2	15
13C2	Slide Rock Mountain	7100	3/23	34	11.0	11.8	15.9	15
13C5	Southern Cross	6500	3/31	15	5.1	3.0	6.1	12
12C1	Stemple Pass	6900	3/29	31	6.8	8.2	11.0	15
13C7	Storm Lake	7780	3/21	38	11.2	11.3	15.6	15
13C6	Stuart Mill	6500	3/31	15	4.9	4.1	7.1	12
12C2	Tenmile, Lower	6250	4/2	15	4.3	4.1	7.1	15
12C3	Tenmile, Middle	6800	4/1	30	7.5	9.1	11.3	15
12C4	Tenmile, Upper	8000	4/1	36	9.5	12.0	14.4	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 960

5,L-16,395.2

WATER SUPPLY OUTLOOK

BITTERROOT RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the coming irrigation season in the Bitterroot River drainage is only Fair.

Streamflow forecasts for the April through September period are generally 5 to 10 percent less than was forecast last month.

Again this month, farmers and ranchers dependent upon natural streamflow for irrigation, are advised to give serious consideration to the planting of early maturing crops such as millet and grains for hay. New stands of hay and pasture should be deferred, as the water supply will be most critical during the latter part of the irrigation season. Those dependent upon a limited water supply should consider summer fallowing part of their cropland for weed control, or defer cropping to facilitate land leveling or revision of irrigation systems. To conserve water, irrigate only when necessary and use proper application rate.

Snow survey measurements made near the first of the month indicate this year's April first snow-pack is 13 percent of the 1943-57 average.

The Bitterroot River is expected to flow less than last year during the irrigation season. Burnt Fork Creek is forecast to produce only two-thirds the normal spring and summer flow.

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,518.1


93
FLORENCE
STEVENSVILLE
13C16
BURNT FORK
3510
VICTOR
RIVER
MONTANA
WOODSIDE
CORVALLIS
BLODGETT CR.
3475
HAMILTON
13C3
38
GRANTSDALE
14C8
14C7
3445
COMO RES
ROCK CR.
BITTERROOT
BITTERROOT S.C.D.
DARBY
CONNER
3440
R A V A L L I
13D1
FORK
3434
SULA
EAST FORK
WEST FORK
14D2
14D1
14D3
3425
3420
13D2
13D16
ALTA
93
N
LEGEND
13E2 SNOW SURVEY COURSE
12D2M SOIL MOISTURE STATION
13B3A AERIAL MARKER AT SNOW COURSE
0125 STREAM GAGING STATION
DRAINAGE
S C D. BOUNDARY
WATERSHED BOUNDARY
HIGHWAY
TOWN
COUNTY BOUNDARY
STATE BOUNDARY
SCALE 5 0 5 10 15 20 MILES
USDA SCS LINCOLN NEBR 1960

5,L-16,518.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED V

(1000 Acre Feet)

FORECAST POINT		FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED	
NO.	NAME				LAST YEAR +	NORMAL
	WEST FORK BITTERROOT RIVER					
3425	Conner (near) (15)	Apr-Sept	109	62	-	176
		Apr-July	102	62	-	164
	BITTERROOT RIVER					
3440	Darby (near)	Apr-Sept	454	77	521	587
		Apr-July	418	76	480	547
		Apr-June	362	76	434	477
3528	Missoula (near) (16)	Apr-Sept	1198	77	1222	1557
		Apr-July	1116	77	1138	1450
		Apr-June	945	76	1027	1244
	BLODGETT CREEK					
3475	Corvallis (near)	Apr-Sept	41.1	88	-	46.7
		Apr-July	38.0	86	-	44.4
	BURNT FORK CREEK					
3510	Stevensville (near)	Apr-Sept	20.3	65	-	31.2
		Apr-July	17.8	64	-	28.0

(15) Observed flow plus change in storage in West Fork Bitterroot River Reservoir.
(16) Difference in observed flow, Clark Fork above and below Missoula.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1961

WATERSHED V

SNOW COURSE NO.	SNOW COURSE NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches) LAST YEAR	PAST RECORD: WATER CONTENT (Inches) AVERAGE	YEARS OF RECORD
13C16	Ambrose	6475	3/30	36	11.0	8.9	-	-
13D1	East Fork R.S.	5400	3/28	14	4.7	4.4	7.1	15
13D2	Gibbons Pass	7100	3/28	59	18.6	16.4	25.4	15
14D3	Kit Carson	4700	3/27	19	5.7	6.9	9.0	15
14C5	Lolo Pass	5230	3/23	80	31.4	24.8	36.7	14
14C7	Lost Horse	5940	3/29	82	32.6	24.4	-	-
13D16	Moose Creek	6200	3/27	38	11.8	12.7	18.3	15
14D2	Nez Perce Camp	5580	3/27	36	10.9	11.2	15.5	15
14D1	Nez Perce Pass	6575	3/27	39	11.7	11.1	19.7	15
14C6	Powell R.S.	4230	3/24	30	10.2	12.0	-	-
14C4	Savage Pass	6600	3/23	67	24.7	21.2	30.3	14
13C3	Skalkaho Summit	7259	3/22	67	23.3	18.0	28.2	15
14C8	Twin Lakes	6510	3/29	101	40.4	32.8	-	-

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

MARIAS, TETON, & SUN RIVER BASINS

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the Sun-Marias-Teton drainage is Fair to Good for the coming irrigation season.

Again this month, farmers and ranchers dependent upon natural streamflow are advised to give serious consideration to planting early maturing crops such as millet and grains for hay. New stands of hay and pasture should be deferred, as the water supply will be most critical during the latter part of the irrigation season. Those dependent upon a limited water supply should consider summer fallowing part of their cropland for weed control, or defer cropping to facilitate land leveling or revision of irrigation systems. To conserve water, irrigate only when necessary and use proper application rate.

Snow survey measurements near the first of April indicate this year's snow-pack is 36 percent greater than last year's, but is only 68 percent of the 1943-57 average.

Inflow to Gibson Reservoir is forecast at 485,000 acre feet for the April through September period, which is about 10 percent more than last year. The Marias River is expected to flow about 15 percent more water than last year during the spring and summer months.

Generally, irrigation reservoir storage is less than last year and below the 1943-57 average.

Report Prepared by

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,502.1

LEGEND

- 13 E 2 — SNOW SURVEY COURSE
- 12D2M — SOIL MOISTURE STATION
- 13B3A — AERIAL MARKER AT SNOW COURSE
- 0125 — STREAM GAGING STATION
- DRAINAGE
- S C D BOUNDARY
- WATERSHED BOUNDARY
- HIGHWAY
- TOWN
- COUNTY BOUNDARY
- STATE BOUNDARY

SCALE 10 0 10 20 30 40 MILES

5,L-16,502.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED VI

(1000 Acre Feet)

FORECAST POINT		FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED	
NO.	NAME				LAST YEAR +	NORMAL
	N.FORK OF NORTH FORK SUN					
0785	Augusta (near)	Apr-Sept	197	82	167	239
		Apr-July	183	82	152	222
	SUN RIVER					
0786	Gibson Dam (at)	Apr-Sept	485	82	436	588
		Apr-July	442	82	395	538
	MARIAS RIVER					
0995	Shelby (near)	Apr-Sept	507	77	436	659
		Apr-July	466	77	408	605

(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL
1013	Tiber	1316.0	645.5	666.3	-
0955	Lake Francis	112.0	78.6	96.2	96.0
0805	Pishkun	32.0	16.7	21.6	18.6
0795	Gibson	105.0	38.6	79.5	66.4
0820	Willow Creek	32.3	19.9	18.5	20.2
0940	Swift	30.0	15.8	30.1	24.7

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1961

WATERSHED VI

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
						WATER CONTENT (Inches)		
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	LAST YEAR	AVERAGE	YEARS OF RECORD
12B8	Benchmark	5500	3/29	21	6.6	3.7	11.2	9
12B6	Cabin Creek	5400	3/29	14	4.5	3.4	7.5	9
12B9	Five-Bull	5600	3/29	14	3.2	2.0	8.4	9
12A1	Freight Creek	6000	3/28	48	13.9	8.8	18.6	10
12B5	Gates Park	5300	3/29	26	8.3	6.3	11.7	9
12B7	Goat Mountain	7000	3/31	39	9.4	6.0	12.4	15
13A5M	Marias Pass	5250	3/29	47	15.6	12.5	20.3	15
12B2	Waldron Creek	5600	3/28	9	2.2	0	8.4	10
12B1	West Fork	6000	3/27	36	9.3	8.6	19.4	10
12B4	Wrong Creek	5700	3/29	40	14.7	10.3	16.8	9
12B3	Wrong Ridge	6800	3/29	56	19.5	17.3	24.2	9

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

MISSOURI RIVER (MAIN STEM) BASIN

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the tributary streams to the Missouri River Main Stem is Poor for the coming irrigation season.

Again this month, farmers and ranchers dependent upon natural streamflow are advised to give serious consideration to planting early maturing crops such as millet and grains for hay. New stands of hay and pasture should be deferred, as the water supply will be most critical during the latter part of the irrigation season. Those dependent upon a limited water supply should consider summer fallowing part of their cropland for weed control, or defer cropping to facilitate land leveling or revision of irrigation systems. To conserve water, irrigate only when necessary and use proper application rate.

Snow survey measurements made near the first of April indicate that water stored in this year's snow-pack is 30 percent less than last year's and 59 percent of the 1943-57 average. Soil moisture is extremely poor; as a result, considerable snow water will be needed for priming before runoff occurs.

Streamflow at Toston is expected to be 13 percent less than last year; tributary streams such as Prickly Pear Creek, Tenmile Creek, Sheep Creek and Smith River are expected to flow 40 to 60 percent average during the spring and summer months.

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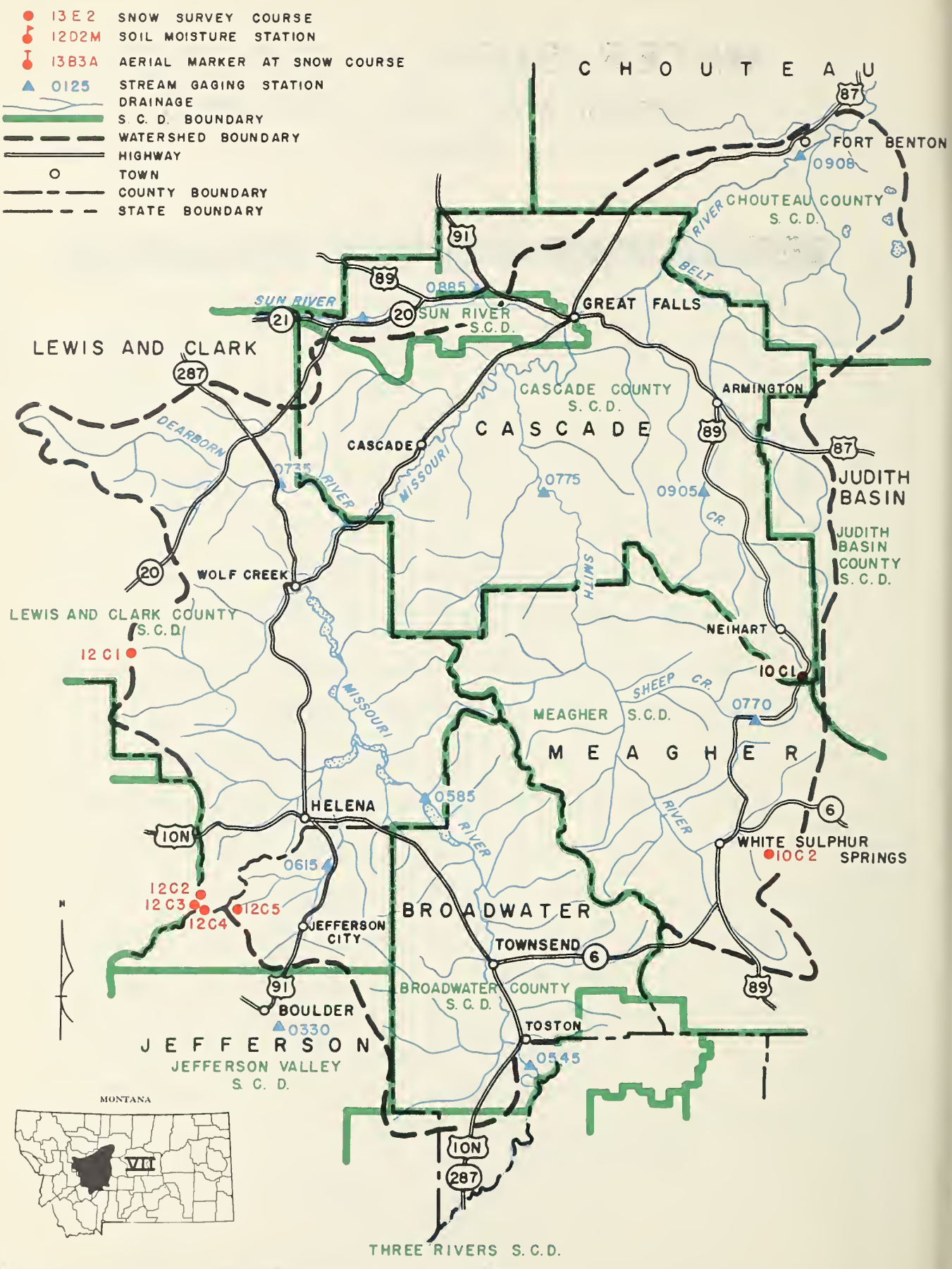
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

5,L-16,400.1

USDA-SCS LINCOLN NEBR 1960



USDA-SCS-LINCOLN, NEBR 1960

5,L-16,400.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED VII

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED LAST YEAR+	MEASURED NORMAL
	MISSOURI RIVER					
0545	Toston (at) (3)	Apr-Sept	1549	66	1774	2342
		Apr-July	1340	66	1528	2030
0908	Fort Benton (at) (5)	Apr-Sept	2375	66	2489	3599
		Apr-July	2044	66	2097	3076
1095	Virgelle (at) (6)	Apr-Sept	2817	64	2936	4393
		Apr-July	2415	64	2523	3803
1150	Zortman (near) (6)	Apr-Sept	3076	64	-	4806
		Apr-July	2657	64	-	4143
1320	Ft.Peck Dam (below)(7)	Apr-Sept	3005	63	-	4761
		Apr-July	2631	63	-	4181
1770	Wolf Point (near)(7)	Apr-Sept	3287	62	3158	5261
		Apr-July	2882	62	2865	4652
3300	Williston, N. D. (8)	Apr-Sept	7067	56	6280	12562
		Apr-July	6172	56	5683	11101
	PRICKLY PEAR CREEK					
0615	Clancy (near)	Apr-Sept	11.4	48	19.4	23.9
		Apr-July	10.0	48	17.1	20.8

(3) Observed flow plus change in storage in Hebgen and Ennis Lakes.
(5) Observed flow plus change in storage in Canyon Ferry.
(6) Observed flow plus change in storage in Canyon Ferry and Tiber Reservoirs.
(7) Observed flow plus change in storage in Canyon Ferry, Tiber and Fort Peck Reservoirs.
(8) Observed flow plus change in storage in Fort Peck, Canyon Ferry, Tiber, Buffalo Bill and Boysen Reservoirs.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
0585	Canyon Ferry	2043.0	1506.0	1938.0	1328.0
0645	Lake Helena	10.4	8.1	7.2	5.3
0660	Holter Lake	81.9	11.3	71.2	54.3
0650	Hauser Lk & Lk. Helena	61.9	55.1	52.5	43.8
1315	Fort Peck	19410.0	11180.0	11360.0	11606.0

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA-SCS-LINCOLN, NEBR. 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF APRIL 1, 1961

WATERSHED VII

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
12C5	Chessman Reservoir	6200	3/30	9	1.2	1.6	5.1	15
10C2	Grasshopper	7000	3/30	7	1.6	3.6	5.6	15
10C1	Kings Hill	7950	3/29	37	9.1	11.9	13.8	15
12C1	Stemple Pass	6900	3/29	31	6.8	8.2	11.0	15
12C2	Tenmile, Lower	6250	4/2	15	4.3	4.1	7.1	15
12C3	Tenmile, Middle	6800	4/1	30	7.5	9.1	11.3	15
12C4	Tenmile, Upper	8000	4/1	36	9.5	12.0	14.4	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS-LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

BEAVERHEAD, & JEFFERSON RIVER BASINS

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the coming irrigation season is generally POOR.

Again this month, farmers and ranchers dependent upon natural streamflow are advised to give serious consideration to planting early maturing crops such as millet and grains for hay. New stands of hay and pasture should be deferred, as the water supply will be most critical during the latter part of the irrigation season. Those dependent upon a limited water supply should consider summer fallowing part of their cropland for weed control, or defer cropping to facilitate land leveling or revision of irrigation systems. To conserve water, irrigate only when necessary and use proper application rate.

Snow surveys near the first of April indicate that snow cover over the entire drainage is slightly more than last year, but is only 65 percent of the 1943-57 average.

April through September streamflow is forecast at 10 to 15 percent less than last year for the Red Rock, Big Hole and Jefferson Rivers, while the Boulder River is expected to flow about 35 percent less than last year.

Storage in Ruby and Lima Reservoirs is less than last year, with Lima about 35 percent average.

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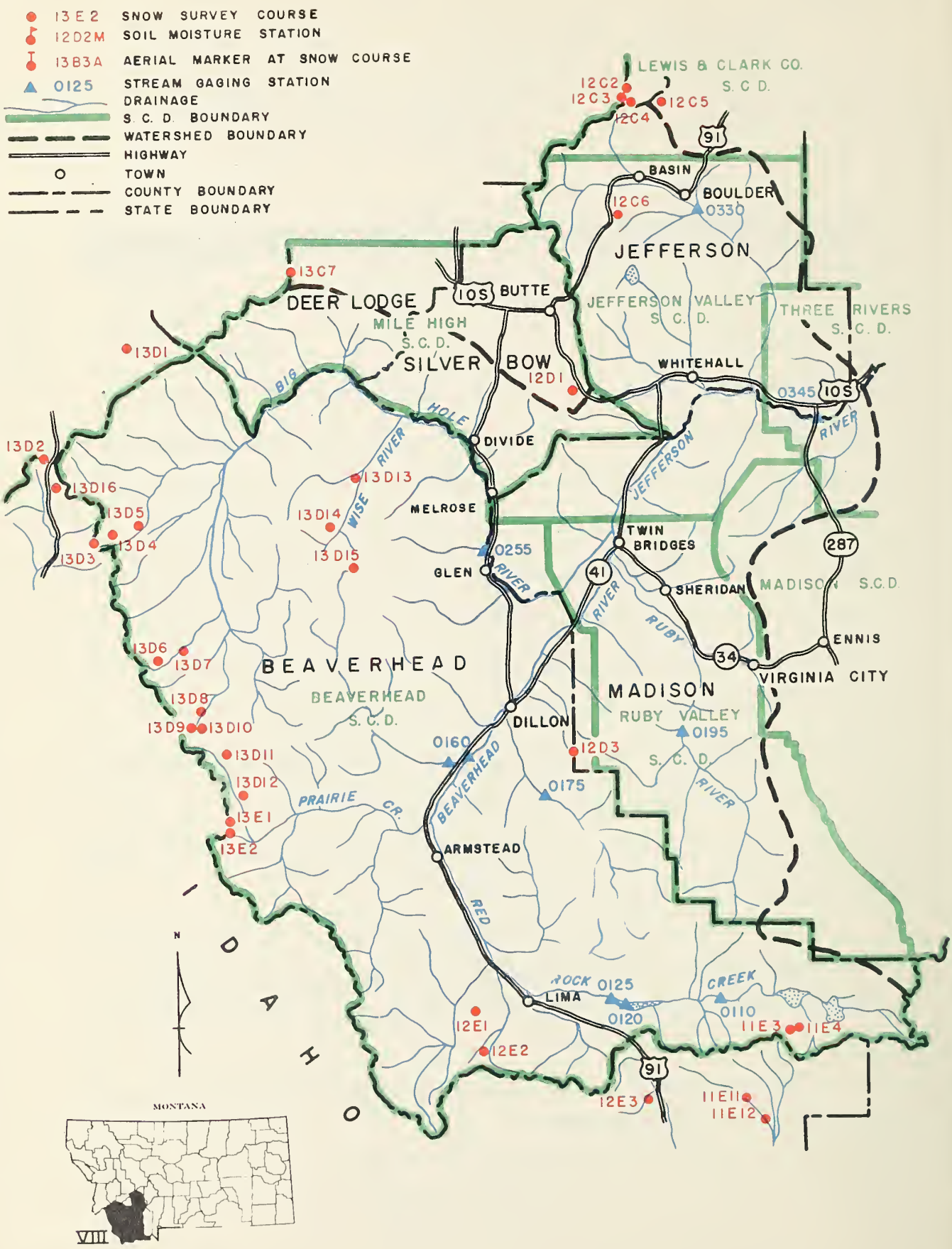
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,394.1


LEGEND
13E2 SNOW SURVEY COURSE
12D2M SOIL MOISTURE STATION
13B3A AERIAL MARKER AT SNOW COURSE
0125 STREAM GAGING STATION
DRAINAGE
S. C. D. BOUNDARY
WATERSHED BOUNDARY
HIGHWAY
TOWN
COUNTY BOUNDARY
STATE BOUNDARY
LEWIS & CLARK CO. S. C. D.
12C2
12C3
12C4
12C5
91
BASIN
BOULDER
0330
12C6
JEFFERSON
13C7
DEER LODGE
10S
BUTTE
JEFFERSON VALLEY S. C. D.
THREE RIVERS S. C. D.
MILE HIGH S. C. D.
SILVER BOW
13D1
12D1
WHITEHALL
0345
10S
BIG HOLE RIVER
DIVIDE
JEFFERSON RIVER
13D2
13D16
13D5
13D4
13D3
13D13
13D14
13D15
WISE RIVER
MELROSE
TWIN BRIDGES
287
0255
GLEN
41
SHERIDAN
MADISON S.C.D.
RUBY RIVER
ENNIS
34
VIRGINIA CITY
13D6
13D7
13D8
13D9
13D10
13D11
13D12
13E1
13E2
BEAVERHEAD
BEAVERHEAD S. C. D.
MADISON
RUBY VALLEY
0195
S. C. D.
DILLON
0160
0175
12D3
BEAVERHEAD RIVER
PRAIRIE CR.
ARMSTEAD
RED
ROCK CREEK
LIMA
0125
0120
0110
12E1
12E2
12E3
11E3
11E4
11E11
11E12
91
IDAHO
N
MONTANA
VIII
SCALE 10 0 10 20 30 40 MILES
USDA SCS LINCOLN NEBR 1980

5,L-16,394.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED VIII

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED LAST YEAR+	MEASURED NORMAL
	RED ROCK RIVER					
0110	Kennedy Ranch (at)	May-Sept	27.1	49	27.8	54.9
		May-July	24.1	49	25.5	49.1
0125	Monida (near) (1)	Apr-Sept	49.2	57	54.6	86.4
		Apr-July	46.1	56	53.5	82.2
	BEAVERHEAD RIVER					
0160	Barratts (at) (1)	Apr-Sept) Apr-July)	No Forecast (B)			
	BIG HOLE RIVER					
0255	Melrose (near)	Apr-Sept	477	62	556	770
		Apr-July	435	61	513	714
	BOULDER RIVER					
0330	Boulder (near)	Apr-Sept	48.1	60	73.0	79.9
		Apr-July	45.9	60	69.9	76.5
	JEFFERSON RIVER					
0345	Sappington (at)	Apr-Sept	644	60	760	1074
		Apr-July	565	59	677	958

(B) Forecasts discontinued at this station because the large number of unmeasured diversions above the station determine the flow.
(1) Observed flow plus change in storage in Lima Reservoir.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
0120	Lima	84.0	11.8	28.9	33.9
	Ruby	38.8	27.1	32.4	25.9

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA-SCS-LINCOLN NEBR 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF APRIL 1, 1961 — WATERSHED VIII

SNOW COURSE NO.	SNOW COURSE NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches): LAST YEAR	PAST RECORD: WATER CONTENT (Inches): AVERAGE	YEARS OF RECORD
13D14	Anderson Meadow	7000	3/21	20	4.5	5.1	9.2	10
13D4	Below Big Hole Pass	6900	3/22	35	8.7	9.9	15.9	10
13D3	Big Hole Pass	7240	3/22	39	10.4	10.7	19.0	10
13D10	Bloody Dick	7600	3/23	31	9.4	8.3	12.7	10
11E11	Blue Ledge Mine	6700	3/31	43	14.1	8.4	17.3	15
12E3	Camp Creek	6800	3/29	25	6.1	5.8	10.4	15
12C5	Chessman Reservoir	6200	3/30	9	1.2	1.6	5.1	15
13D5	East Boundary	6700	3/22	14	3.8	4.2	9.5	10
13D15	Elk Horn	8450	3/31	26	6.4	6.6	10.7	15
13D2	Gibbons Pass	7100	3/28	59	18.6	16.4	25.4	15
13D9	Gold Stone	8100	3/23	37	10.0	11.3	16.7	10
13D8	Jahnke Creek	7340	3/23	24	6.7	8.1	12.5	10
11E12	Kilgore	6200	3/31	31	9.5	6.4	10.3	15
11E4	Lakeview Canyon	6930	3/29	34	9.6	7.3	10.9	10
11E3	Lakeview Ridge	7400	3/29	29	7.6	5.4	10.0	10
13E1	Lemhi Pass	7480	3/28	28	6.5	6.8	10.0	10
12E2	Limekiln	6950	3/28	0	0	0	1.7	10
13D6	Miner Forks	7300	3/24	36	9.4	9.2	13.8	10
13D7	Miner Lake	6720	3/24	23	5.9	6.5	9.1	13
13D16	Moose Creek	6200	3/27	38	11.8	12.7	18.3	15
12C6	Picnic Grounds	6500	3/31	7	2.1	2.6	4.5	12
12D1	Pipestone Pass	7200	4/3	15	4.9	5.6	6.0	15
13D11	Selway Junction	6800	3/27	25	6.9	5.6	9.7	10
13C7	Storm Lake	7780	3/21	38	11.2	11.3	15.6	15
12C2	Tenmile, Lower	6250	4/2	15	4.3	4.1	7.1	15
12C3	Tenmile, Middle	6800	4/1	30	7.5	9.1	11.3	15
12C4	Tenmile, Upper	8000	4/1	36	9.5	12.0	14.4	15
13D12	Terrell Creek	6650	3/27	9	3.2	0.9	5.1	10
13E2	Trail Creek	7090	3/28	29	6.2	7.8	9.4	10
11E1	White Pine Ridge	8850	3/28	22	4.2	3.0	6.4	10
13D13	Wise River	6300	3/21	9	2.7	3.8	5.9	10

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

WATER SUPPLY OUTLOOK

MADISON, & GALLATIN RIVER BASINS

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the coming irrigation season in the Madison and Gallatin River basins is FAIR to POOR.

Again this month, farmers and ranchers dependent upon natural streamflow are advised to give serious consideration to planting early maturing crops such as millet and grains for hay. New stands of hay and pasture should be deferred, as the water supply will be most critical during the latter part of the irrigation season. Those dependent upon limited water supply should consider summer fallowing part of their cropland for weed control, or defer cropping to facilitate land leveling or revision of irrigation systems. To conserve water, irrigate only when necessary and use proper application rate.

Snow surveys near the first of April indicate this year's snow-pack is 29 percent greater than last year's, and 81 percent of the 1943-57 average. Low elevation snow is much below average.

April through September streamflow is forecast slightly more than last year on the Madison River; however, the Gallatin River and Hyalite Creek are forecast 15 to 20 percent less than last year. The East Gallatin River is expected to flow 30 percent less than last year and 54 percent of of the 1943-57 average.

Soil moisture is deficient; much of the snow water will be required to prime these soils.

Report Prepared by

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,521.1

USDA SCS-LINCOLN, NEBR. 1960

5,L-16,521.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED IX

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED LAST YEAR+	MEASURED NORMAL
	MADISON RIVER					
0375	West Yellowstone (near)	Apr-Sept	174	80	171	216
		Apr-July	131	80	128	165
0385	Grayling (near) (2)	Apr-Sept	353	79	327	448
		Apr-July	282	79	247	357
0410	McAllister (near) (3)	Apr-Sept	625	83	620	756
		Apr-July	507	83	480	613
	WEST GALLATIN RIVER					
0435	Gateway (near)	Apr-Sept	353	77	416	459
		Apr-July	298	76	353	395
0500	Hyalite Cr. R.S.(at)(4)	Apr-Sept	29.2	81	35.4	36.1
		Apr-July	25.1	81	30.6	31.0
	EAST GALLATIN RIVER					
0480	Bozeman (at)	Apr-Sept	24.9	54	42.7	46.4
		Apr-July	21.9	54	36.9	40.7
	GALLATIN RIVER					
0525	Logan (at)	Apr-Sept	327	67	420	492
		Apr-July	281	67	352	422

(2) Observed flow plus change in storage in Hebgen Lake.
(3) Observed flow plus change in storage in Hebgen and Ennis Lakes.
(4) Observed flow plus change in storage in Hyalite Reservoir.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
0380	Hebgen Lake	345.0	152.1	8.9	208.3
0405	Ennis Lake	41.0	37.9	38.2	35.3
0500	Middle Creek	8.0	3.8	4.4	4.0

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1961

WATERSHED IX

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
11E9	Big Springs	6500	3/29	56	19.8	11.0	23.6	15
10D4	Devil's Slide	8100	3/29	58	17.1	23.0	21.2	15
11E5	Hebgen	6550	3/30	32	9.7	7.6	12.6	15
10D3	Hood Meadow	6600	3/28	26	7.6	7.9	9.8	15
11E10	Island Park	6315	3/30	45	15.0	8.9	17.8	15
11D5	Jack Creek	7600	3/29	10	3.6	-	-	-
10D1	New World	6700	3/25	28	9.3	9.2	10.6	15
10E2	Norris Basin	7500	3/31	31	8.7	6.6	10.3	12
11D3	North Meadow	7500	3/30	36	9.5	-	-	-
10D10	Sacajawea	6550	3/27	39	10.0	12.5	-	-
11E6	Twenty-One Mile	7150	3/30	46	14.8	8.8	19.2	15
11E8	Valley View	6500	3/29	42	13.4	8.0	16.4	15
11E7	West Yellowstone	6700	3/30	30	9.3	5.4	12.7	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS-LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

JUDITH, & MUSSELSHELL RIVER BASINS

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the coming irrigation season in the Judith and Musselshell River basins is POOR.

Again this month, farmers and ranchers dependent upon natural streamflow are advised to give serious consideration to planting early maturing crops such as millet and grains for hay. New stands of hay and pasture should be deferred, as the water supply will be most critical during the latter part of the irrigation season. Those dependent upon limited water supply should consider summer fallowing part of their cropland for weed control, or defer cropping to facilitate land leveling or revision of irrigation systems. To conserve water, irrigate only when necessary and use proper application rate.

Snow surveys made near the first of April indicate this year's snowpack is only 55 percent of last year's and 47 percent of the 1943-57 average. Lack of low elevation snow and dry soil under the snow-pack will greatly reduce the water supply for the coming irrigation season.

The April through September streamflow in the Musselshell and Judith Rivers is forecast to be less than last year and about 45 percent below average. Much below normal flow can be expected for other creeks and streams in this area.

Report Prepared by

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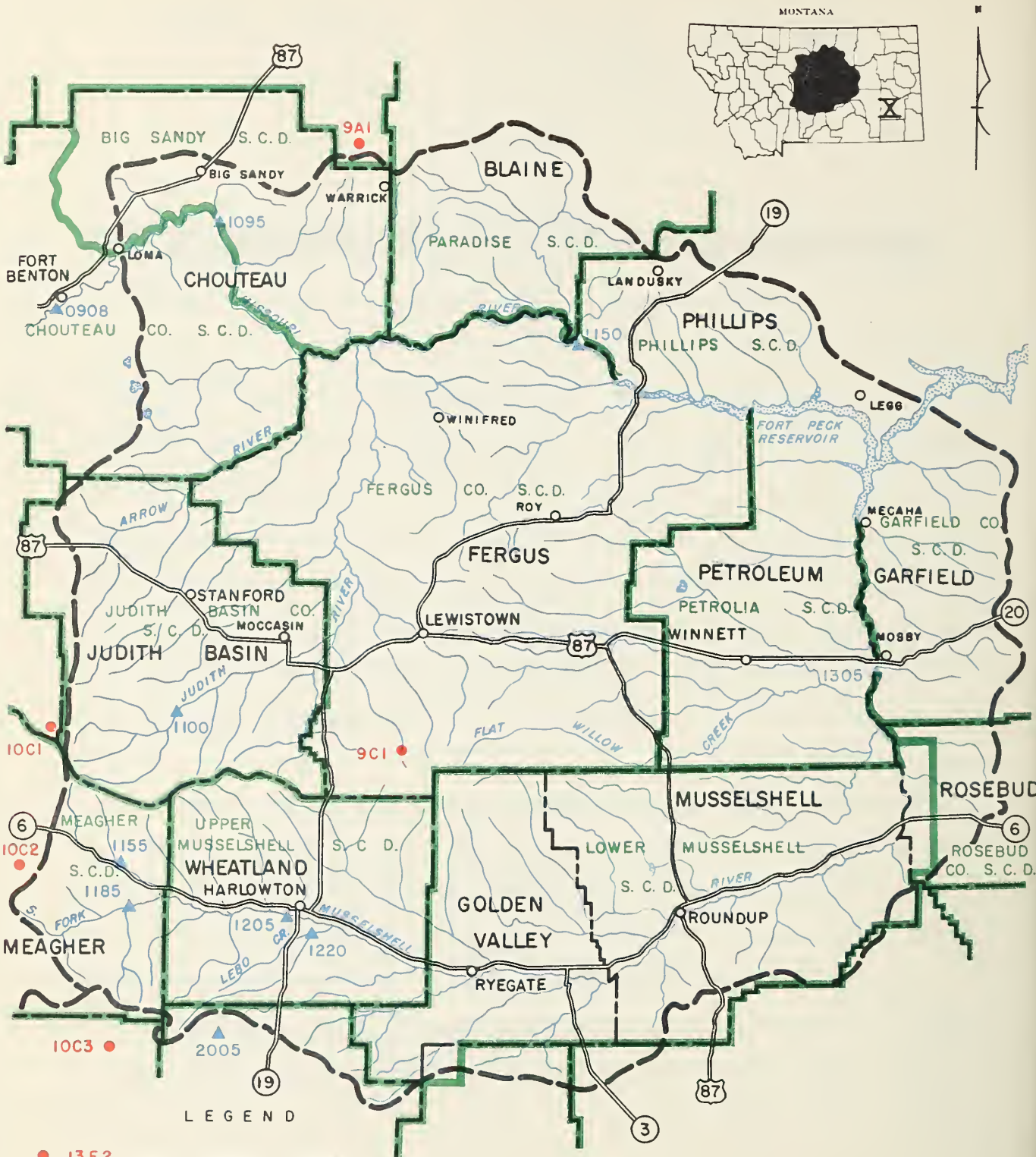
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,516.1



USDA-SCS-LINCOLN NEBR 1960

5,L-16,516.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED X

(1000 Acre Feet)

FORECAST POINT		FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED	
NO.	NAME				LAST YEAR	NORMAL
	MUSSELSHELL RIVER					
	South Fork					
1185	Martinsdale (above)	Apr-Sept	29.5	55	31.5	53.6
		Apr-July	28.2	55	29.9	51.4
1205	Harlowton (at) (9)	Apr-Sept	44.0	53	-	83.0
		Apr-July	43.4	53	-	82.0
	MISSOURI RIVER					
1095	Virgelle (at) (6)	Apr-Sept	2817	64	2936	4393
		Apr-July	2415	64	2523	3803
1150	Zortman (near) (6)	Apr-Sept	3076	64	-	4806
		Apr-July	2657	64	-	4143

(6) Observed flow plus change in storage in Canyon Ferry and Tiber Reservoirs.
(9) Observed flow plus change in storage in Durand and Martinsdale Reservoirs.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL
1165	Durand	7.0	4.3	6.5	5.3
1105	Ackley	5.8	-	4.1	4.3
1190	Martinsdale	23.1	4.0	7.5	10.2

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA-SCS-LINCOLN NEBR 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF APRIL 1, 1961

WATERSHED X

SNOW COURSE NO.	SNOW COURSE NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches) LAST YEAR	PAST RECORD: WATER CONTENT (Inches) AVERAGE	YEARS OF RECORD
10C5	Bald Ridge	7500	3/24	29	8.4	-	-	-
9C1	Crystal Lake	6100	3/31	16	4.7	14.4	11.8	15
10C2	Grasshopper	7000	3/30	7	1.6	3.6	5.6	15
10C1	Kings Hill	7950	3/29	37	9.1	11.9	13.8	15
10C3	Porcupine	6500	3/24	16	4.8	5.0	6.8	15
9A1	Rocky Boy	5200	3/31	0	0	2.1	5.2	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 960

5,L-16,395.2

WATER SUPPLY OUTLOOK

UPPER YELLOWSTONE RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1961

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the coming irrigation season in the Upper Yellowstone drainage is FAIR to POOR.

Again this month, farmers and ranchers dependent upon natural streamflow are advised to give serious consideration to planting early maturing crops such as millet and grains for hay. New stands of hay and pasture should be deferred, as the water supply will be most critical during the latter part of the irrigation season. Those dependent upon limited water supply should consider summer fallowing part of their cropland for weed control, or defer cropping to facilitate land leveling or revision of irrigation systems. To conserve water, irrigate only when necessary and use proper application rate.

Snow surveys made on or about April first indicate this year's snowpack is 15 percent greater than last year's, but only 72 percent of the 1943-57 average. Lower elevation snow is deficient in all areas.

Streamflow is expected to be slightly greater than last year in most streams originating at the higher elevations.

Rock Creek is forecast to flow 64,000 acre feet from April through September, which is about 10 percent less than last year.

Report Prepared by

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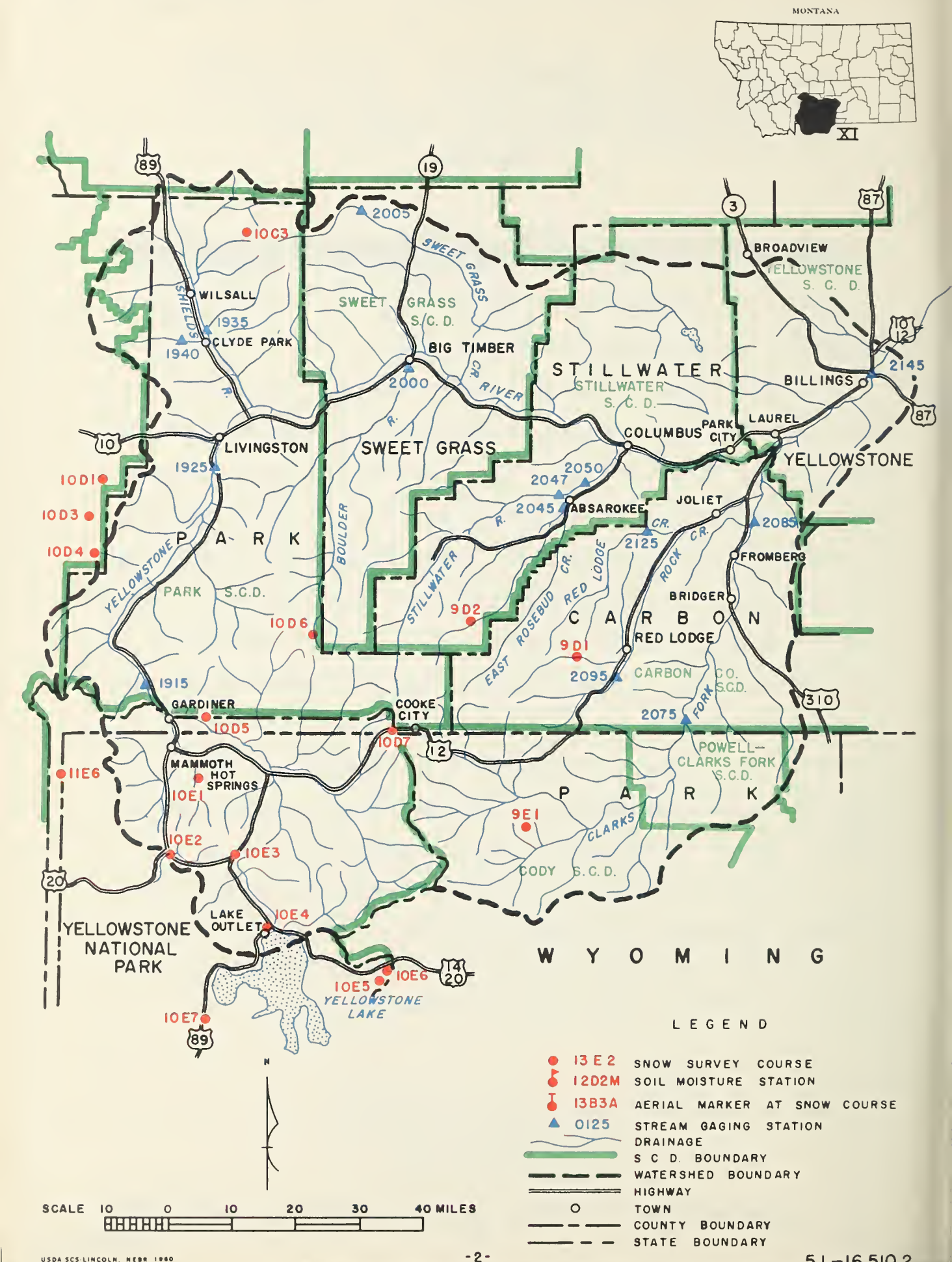
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,510.1



USDA SCS-LINCOLN, NEBR 1960

5,L-16,510.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1961 - WATERSHED XI

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED LAST YEAR +	MEASURED NORMAL
	YELLOWSTONE RIVER					
1915	Corwin Springs (at)	Apr-Sept	1421	72	1322	1980
		Apr-July	1158	71	1108	1649
1925	Livingston (near)	Apr-Sept	1589	71	1527	2252
		Apr-July	1276	69	1273	1863
2145	Billings (at)	Apr-Sept	2770	65	2526	4261
		Apr-July	2377	65	2176	3657
3090	Miles City (at) (13)	Apr-Sept	3629	54	2897	6721
		Apr-July	3177	54	2569	5883
3295	Sidney (near) (13)	Apr-Sept	3530	51	2675	6921
		Apr-July	3130	51	2473	6137
	SHIELDS RIVER					
1935	Clyde Park (at)	Apr-Sept	68.8	62	63.4	111
		Apr-July	64.0	62	58.7	103
	ROSEBUD CREEK					
2045	Absarokee (near) (12)	Apr-Sept	151	56	131	267
		Apr-July	123	57	107	216
	STILLWATER RIVER					
2050	Absarokee (near) (12)	Apr-Sept	364	59	332	620
		Apr-July	318	59	279	523
	CLARKS FORK RIVER					
2075	Chance (at)	Apr-Sept	461	75	386	617
		Apr-July	411	75	362	552
2085	Edgar (at)	Apr-Sept	472	72	391	652
		Apr-July	417	72	355	575
	ROCK CREEK					
2095	Red Lodge (near)	Apr-Sept	64.0	57	706	112
		Apr-July	49.2	57	51.9	863

(12) Observed flow plus change in storage in Mystic Lake.
(13) Observed flow plus change in storage in Buffalo Bill and Boysen Reservoir.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1961

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
2120	Cooney Reservoir			-	12.7
2040	Mystic Lake	20.8	5.1	5.0	5.7

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA-SCS-LINCOLN, NEBR 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF APRIL 1, 1961

WATERSHED XI

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
10C5	Bald Ridge	7500	3/24	29	8.4	-	-	-
9D1	Camp Senia	7890	3/21	12	2.7	5.0	7.3	15
10E3	Canyon	7500	4/1	45	13.3	8.7	16.0	15
10D7	Cooke City	7400	3/31	22	7.4	5.5	9.5	15
10D5	Crevice Mountain	8400	3/31	21	5.6	3.9	10.5	15
10D4	Devil's Slide	8100	3/29	58	17.1	23.0	21.2	15
10E6	East Entrance	7000	4/2	27	6.8	4.6	11.9	9
9D3	Gertrude Lake	9250	3/21	32	8.0	-	-	-
9D5	Grizzly Peak	8400	3/22	30	8.2	-	-	-
10D3	Hood Meadow	6600	3/28	26	7.6	7.9	9.8	15
10D6	Independence	8000	3/17	49	15.2	12.2	20.1	12
10E4	Lake Camp	7850	3/31	34	8.6	5.6	12.0	14
9E1	Lodgepole	8200	4/1	28	7.4	6.3	11.7	13
10E1	Lupine Creek	7300	3/31	29	8.9	6.7	11.6	14
10D12	Monument Peak	9000	3/17	65	21.2	-	-	-
10D1	New World	6700	3/25	28	9.3	9.2	10.6	15
10E2	Norris Basin	7500	3/31	31	8.7	6.6	9.9	12
10C3	Porcupine	6500	3/24	16	4.8	5.0	6.8	15
10D10	Sacajawea	6550	3/27	39	10.0	12.5	-	-
10E5	Sylvan Pass	7100	4/1	40	11.2	8.3	15.9	14
10E7	Thumb Divide	7900	3/28	58	16.1	11.8	25.8	15
9D4	Timberline Creek	8850	3/21	36	9.2	-	-	-

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

STATUS OF RESERVOIR STORAGE

March 31, 1961

BASIN & STREAM	RESERVOIR	USABLE CAPACITY 1000 A.F.	USABLE STORAGE - 1000 ACRE FEET			
			1961	1960	1943-57 Average	Years Record Used
MISSOURI RIVER BASIN - WYOMING						
Shoshone River	Buffalo Bill	372.5	135.2	128.0	220.6	15
Wind River	Boysen	560.0AC	106.3	139.6	228.7**	5
Wind River	Pilot Butte	31.6	24.7	26.0	18.2	15
Bull Creek	Bull Lake	152.0	58.3	36.6	60.1	15
Belle Fourche	Key Hole	190.3AC	2.7	14.8	11.7**	6
MISSOURI RIVER BASIN - NORTH DAKOTA						
Heart River	Lake Tschida	68.7AC	49.8	75.1	65.3**	7
Heart River	E. A. Patterson	5.6AC	4.1	5.9	5.4**	7
Missouri River	Garrison Lake	18100.0AC	4741.9	5020.9	-	-
James River	Jamestown	20.0AC	15.9	10.4	-	-
MISSOURI RIVER BASIN - SOUTH DAKOTA						
Belle Fourche	Belle Fourche	185.2AC	37.6	60.9	116.9	15
Cheyenne River	Angostura	90.0AC	6.5	28.8	47.2**	6
Cheyenne River	Deerfield	15.1AC	2.8	1.7	13.3**	10
Grand River	Shadehill	84.0AC	51.3	82.4	81.1**	5
Missouri River	Ft. Randall	3800.0AC	2607.0	3222.0	1736.3**	3
Missouri River	Gavins Point	320.0AC	259.2	402.7	-	-
Missouri River	Oahe	17000.0AC	4000.0T	2167.0T	-	-
Cheyenne River	Pactola	55.0AC	16.4	25.4	-	-

** Average for years of record shown in 1943-57 period.
AC Active Capacity; USBR Billings
T Total Storage.

WYOMING SNOW SURVEYS ABOUT APRIL 1, 1961

No.	Snow Course Name	Elev.	Current Information			Past Record		Years Record Used in Average
			Date of Survey	Snow Depth (In.)	Water Content (In.)	Water Content (In.) Last Year	Water Content (In.) 15-Year Average 1943-57	
LOWER YELLOWSTONE - WIND RIVER								
9F12	Big Warm	8800	3/27	30	5.8	7.1	9.1**	6
9F4	Burroughs Creek	8800	3/29	35	8.8	7.8	15.0**	12
9F10	Dinwoodie	10000	3/30	44	8.6	9.2	13.3**	11
9F17	Dinwoodie Glaciers	10000	No Report			8.0E	-	2
9F9	Dry Creek	9500	3/30	28	5.5	4.3	7.0**	11
9F6	DuNoir	8750	3/27	20	3.4	4.9	10.1	20
9F7	Geyser Creek	8500	3/28	20	3.9	3.9	8.4**	12
9F8	Little Warm	9500	3/28	50	12.5	13.7	18.4**	12
9F14	Sheridan R.S. #2	7500	3/27	16	3.9	5.0	6.9**	6
9F3	T-Cross Ranch	8000	3/29	17	4.0	2.9	8.1	20
#10F9	Togwotee Pass	9600	3/29	71	24.0	24.6	32.1	25
#9G7	Twenty Lakes	10000	No Report			7.5E	-	2
LOWER YELLOWSTONE - POPO AGIE RIVER								
8G2	Blue Ridge	9500	3/24	35	7.9	6.9	13.8	21
8G5	Bruce's Camp	6500	3/23	14	4.4	4.3	-	3
9G3	Hobbs Park	10000	4/1	56	15.1	12.9	18.9**	12
9G4	Mosquito Park R.S.	9500	4/1	32	6.8	5.7	8.8*	16
8G1	Sawmill Glade	8500	3/24	32	7.5	5.9	8.6	21
#8G3	South Pass	9000	3/24	40	8.7	10.2	16.4	21
9F11	St. Lawrence R.S.	9000	3/27	23	5.6	3.3	7.6*	17
9G2	Trout Creek	8400	4/1	29	7.6	3.2	6.3**	12
LOWER YELLOWSTONE - OWL CREEK								
#9F19	Kirwin	10000	3/30	28	5.5	8.0E	-	1
8F1	Owl Creek	8700	3/27	32	7.6	7.8	6.1**	11
LOWER YELLOWSTONE - GREYBULL RIVER								
9E6	Frontier Needle	10000	3/30	29	5.5	-	-	-
9E3	Timber Creek #2	8800	3/29	20	3.6	4.7	3.6**	6
9F1	Wood River #2	8000	3/28	29	6.5	6.3	5.3**	6

*Average for years of record shown in 1943-57 base period.
**Average of all past data. - E Estimated water content.
#Adjacent drainage.

WYOMING SNOW SURVEYS ABOUT APRIL 1, 1961

No.	Snow Course Name	Elev.	Current Information: Date of Survey	Current Information: Snow Depth (In.)	Current Information: Water Content (In.)	Past Record: Water Content (In.): Last Year	Past Record: Water Content (In.): 15-Year Average 1943-57	Years Record Used in Average
LOWER YELLOWSTONE - SHOSHONE RIVER								
9E4	Carter Mountain	7800	3/30	22	5.3	5.2		4
9F18	Younts Peak	8500	3/30	44	10.9	12.0E		1
LOWER YELLOWSTONE - NOWOOD CREEK								
#7F1	Bear Trap	8000	3/24	32	8.8	6.2		1
#7F2	Canyon Creek	7400	3/23	44	12.3	10.0		1
7E25	Cold Springs Camp	8700	3/31	26	6.5	5.8	7.5**	5
7E24	Medicine Lodge Lks.	9500	3/31	38	10.4	9.7	11.5**	5
#7E8	Munkres Pass	9700	3/31	29	7.5	8.3	9.2**	11
#7E27	Onion Gulch	8100	3/24	29	7.2	8.3	9.0**	5
7E7	Tensleep R.S.	8300	4/2	25	7.3	7.1	7.3	24
7E35	Tyrell R.S.	8300	4/2	30	8.1	6.5	7.9**	5
7E26	West Tensleep Lake	9075	4/2	39	9.9	9.9	11.3**	5
LOWER YELLOWSTONE - SHELL CREEK								
#7E21	Bald Mountain	9600	3/24	61	18.8	20.7	20.0**	5
#7E20	Beaver Tongue	9200	3/24	55	16.8	18.4	19.4**	5
#7E18	Bone Spring	9200	3/27	55	13.4	16.1	17.2**	5
7E22	Granite Creek Camp	7800	4/1	Trace		0.0	3.4**	5
#7E17	Granite Pass	8950	3/27	52	14.1	15.3	16.4**	5
7E4	Ranger Creek	8800	4/1	30	7.8	6.9	9.0*	23
7E23	Shell Creek	9600	4/1	49	11.8	13.7	14.8**	5
LOWER YELLOWSTONE - PORCUPINE CREEK								
7E31	Five Springs Falls	7500	3/30	19	5.4	5.4	5.7**	5
#7E30	Medicine Wheel	9000	3/25	49	14.3	16.1	16.0**	5

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#Adjacent drainage.

WYOMING SNOW SURVEYS ABOUT APRIL 1, 1961

No.	Snow Course Name	Elev.	Current Information			Past Record		Years Record Used in Average
			Date of Survey	Snow Depth (In.)	Water Content (In.)	Water Content (In.) Last Year	Water Content (In.) 15-Year Average 1943-57	
LOWER YELLOWSTONE - TONGUE RIVER								
7E32	Big Goose #2	7700	3/29	29	7.6	6.3	7.6**	5
7E33	Burgess R.S. #2	7900	3/25	27	6.4	7.9	7.8**	5
7E34	Dome Lake #2	8800	3/29	38	9.1	9.7	10.3**	5
7E14	Gloom Creek	9300	3/26	48	12.2	14.8	13.3**	5
7E11	Sibley Lake	8000	3/28	39	9.3	9.0	9.8**	5
7E10	Steamboat Point	7500	3/28	29	7.3	7.6	7.7**	5
7E12	Sucker Creek	9000	3/26	41	11.2	12.4	12.1**	5
7E13	Wood Rock G.S.	8500	3/26	38	8.5	10.6	10.8**	5
LOWER YELLOWSTONE - POWDER RIVER								
7E36	Clouds Peak	10000	3/29	48	12.0E	17.0E		1
#7E28	Muddy Creek G.S.	7500	3/31	19	4.4	2.4	4.1**	5
7E5	Soldier Park	8700	4/1	24	5.4	5.6	5.4**	11
7E6	Sour Dough	8500	3/30	28	6.8	4.8	7.3	24

*Average for years of record shown in 1943-57 base period.
**Average of all past data. - E Estimated water content.
#Adjacent drainage.

WYOMING STREAMFLOW FORECASTS APRIL 1, 1961 2/

Basin and Tributary	April 1 - September 30 Seasonal Streamflow in Thousands of Acre Feet			
	Forecast Runoff	Percent 15-Year Average	Measured Runoff 1959	15-Year Average 1943-57
NORTH POPO AGIE				
Milford (near)	50	58	55	86*
LITTLE POPO AGIE				
Lander (near)	22	45	25	49*
WIND RIVER				
Dubois (at)	60	55	88	110*
SHOSHONE RIVER				
Buffalo Bill Dam (below) (1)	650	76	397	851

All stream data taken from observed flow records with the following exceptions:
(1) Observed flow corrected for storage in Buffalo Bill Reservoir and Heart Mountain diversion.
2/ Forecasts prepared by George W. Peak, Soil Conservation Service, Casper, Wyoming.
* Average is for less than 15 years of record in the 1943-57 period.

Agencies Cooperating in Collecting Data Contained in this Bulletin

U. S. Forest Service
Region I, Missoula, Montana

U. S. Geological Survey
Helena, Montana

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Omaha, Nebraska
Riverdale, N. D.

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana

U. S. Fish & Wildlife Service
Red Rock Lakes Refuge
Monida, Montana

U. S. Bureau of Reclamation
Billings, Montana
Boise, Idaho

Montana Power Company
Butte, Montana

Agricultural Experiment Station
North Montana Branch Station
Havre, Montana

Montana State Highway Dept.
East Glacier, Montana

National Park Service
Yellowstone National Park
Glacier National Park

Montana Experiment Station
Montana State College
Bozeman, Montana

Bonneville Power Administration
Portland, Oregon

Montana State School of Forestry
Montana State University
Missoula, Montana

Soil Conservation Service
Montana, Wyoming, Idaho

Soil Conservation Districts
Montana Counties

Johnson Flying Service, Inc.
Missoula, Montana

Water Rights Branch
Dept. of Lands & Forests
Victoria, British Columbia

Department of Northern Affairs
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Calgary, Alberta

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COOPERATIVE SNOW SURVEYS

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Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"The Conservation of Water begins with the Snow Survey"